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Analyses of Natural Gases, 1982

By Richard D. Miller and Floyd R. Hertweck, Jr.

UNITED STATES DEPARTMENT OF THE INTERIOR

Information Circular 8942

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UNITED STATES DEPARTMENT OF THE INTERIOR
James G. Watt, Secretary

BUREAU OF MINES
Robert C. Horton, Director

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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

This publication has been cataloged as follows:

Miller, Richard D

Analyses of natural gases, 1982.

(Information circular / United States Department of the Interior, Bureau of Mines ; 8942)

Bibliography: p. 100.

Supt. of Docs. no.: I 28.27:8942.

1. Gas, Natural—Analysis. I. Hertweck, Floyd R. II. Title. III. Series: Information circular (United States. Bureau of Mines) ; 8942.

TN295.U4 [TP350] 622s [665.7'3] 83-600213

CIP/ dc 98 6/13/83

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ANALYSES OF NATURAL GASES, 1982

By Richard D. Miller[1] and Floyd R. Hertweck, Jr.[2]

INTRODUCTION

This Bureau of Mines publication contains analyses and related source data for 271 natural gas samples from 22 States collected during calendar year 1982. All samples were obtained and analyzed as part of Bureau of Mines investigations of the occurrences of helium in natural gases of countries with free market economies. This survey has been conducted since 1917. The analyses published herein were made by the mass spectrometer and chromatograph.

The results of the investigation of the occurrences of helium are published annually to make the information available to the petroleum industry and the general public. Twenty-six publications have presented the results of 13,051 gas analyses made prior to 1982. The first 3 bulletins (1-3)[3] contain analyses and related source data on 5,218 gas samples collected from 1917 through 1960; these bulletins have been supplemented annually by information circulars (4-17, 19-24, 26) containing 7,833 analyses of samples collected since 1960.

In 1976, a compilation of the analyses made prior to 1975 was prepared by the Bureau of Mines and published by the National Technical Information Service of the U.S. Department of Commerce (18). This compilation contains 10,562 analyses of gas samples from oil and gas wells and natural gas pipelines in 37 States and 23 foreign countries. In 1982, a compilation of analyses made prior to 1980 was published (25). The 1982 publication contains 12,554 analyses of gas samples from oil and gas wells and natural gas pipelines in 39 States and 24 foreign countries and includes all of the analyses in the 1976 publication.

In addition to being in the publications, all published analyses and related information through 1981 are available on a magnetic tape file. The tape is available for $125 from the National Technical Information Service, Springfield, Va. 22161; orders should refer to Bureau of Mines tape PB 82-121708.

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Section of Helium Resources Evaluation, Branch of Helium Resources, Helium Field Operations, Bureau of Mines, Amarillo, Tex.
[3]Underlined numbers in parentheses refer to items in the list of previous publications at the end of the report.

ACKNOWLEDGMENTS

The helium survey program is conducted by soliciting natural gas samples throughout the United States and other countries with free market economies. Without the assistance of the petroleum industry, State and Federal agencies, and many individuals engaged in oil and gas exploration and production, the helium survey with its present scope would not be possible. The analyses listed in the tables were made by the Section of Technical and Analytical Services, Helium Field Operations, Bureau of Mines, Amarillo, Tex. The list of analyses was produced through use of a computer by the Section of Automatic Data Processing, Helium Field Operations, Bureau of Mines, Amarillo, Tex.

GEOLOGIC PROVINCES OF THE UNITED STATES

The tables include geologic province codes so each sample source can be located within a specific geologic province as defined by the Committee on Statistics of Drilling of the American Association of Petroleum Geologists.[4] These provinces, which are given in the following list and shown in figure 1, are delineated by political boundaries for convenience and for accommodation of data-processing equipment. Not all of the provinces shown are gas-producing areas, so many of the codes are not used in this publication. In offshore areas, only one code is used for each State, since State or Federal ownership is not always known. Only one code, 972, is used for all wells in Alaska, both onshore and offshore, because of the lack of information on the location of wells in that State.

The following list and figure 1 are taken from the article cited in footnote 4.

[4]Meyer, R. F. Geologic Provinces Code Map for Computer Use. AAPG Bull., v. 54, No. 7, July 1970, pp. 1301-1305.

FIGURE 1. - Geologic provinces of the United States.

Code	Province
100	New England Province
110	Adirondack Uplift
120	Atlantic Coast Basin
130	South Georgia-North Florida Sedimentary Province
140	South Florida Province
150	Piedmont-Blue Ridge Province
160	Appalachian Basin
200	Warrior Basin
210	Mid-Gulf Coast Basin
220	Gulf Coast Basin
230	Arkla Basin
240	Desha Basin
250	Upper Mississippi Embayment
260	East Texas Basin
300	Cincinnati Arch
305	Michigan Basin
310	Wisconsin Arch
315	Illinois Basin
320	Sioux Uplift
325	Iowa Shelf
330	Lincoln Anticline
335	Forest City Basin
340	Ozark Uplift
345	Arkoma Basin
350	South Oklahoma Folded Belt Province
355	Chautauqua Platform
360	Anadarko Basin
365	Cherokee Basin
370	Nemaha Anticline
375	Sedgwick Basin
380	Salina Basin
385	Central Kansas Uplift
390	Chadron Arch
395	Williston Basin
400	Ouachita Tectonic Belt Province
405	Kerr Basin
410	Llano Uplift
415	Strawn Basin
420	Fort Worth Syncline
425	Bend Arch
430	Permian Basin
435	Palo Duro Basin
440	Amarillo Arch
445	Sierra Grande Uplift
450	Las Animas Arch
455	Las Vegas-Raton Basin
460	Estancia Basin
465	Orogrande Basin
470	Pedregosa Basin
475	Basin-and-Range Province

Code	Province
500	Sweetgrass Arch
505	Montana Folded Belt Province
510	Central Montana Uplift
515	Powder River Basin
520	Big Horn Basin
525	Yellowstone Province
530	Wind River Basin
535	Green River Basin
540	Denver Basin
545	North Park Basin
550	South Park Basin
555	Eagle Basin
560	San Luis Basin
565	San Juan Mountain Province
570	Uinta Uplift
575	Uinta Basin
580	San Juan Basin
585	Paradox Basin
590	Black Mesa Basin
595	Piceance Basin
600	Northern Cascade Range--Okanagan Province
605	Eastern Columbia Basin
610	Idaho Mountains Province
615	Snake River Basin
620	Southern Oregon Basin
625	Great Basin Province
630	Wasatch Uplift
635	Plateau Sedimentary Province
640	Mojave Basin
645	Salton Basin
650	Sierra Nevada Province
700	Bellingham Basin
705	Puget Sound Province
710	Western Columbia Basin
715	Klamath Mountains Province
720	Eel River Basin
725	Northern Coast Range Province
730	Sacramento Basin
735	Santa Cruz Basin
740	Coastal Basins
745	San Joaquin Basin
750	Santa Maria Basin
755	Ventura Basin
760	Los Angeles Basin
765	Capistrano Basin

Code	Province
800	Heceta Island area
805	Keku Islands area
810	Gulf of Alaska Basin
815	Copper River Basin
820	Cook Inlet Basin
830	Kandik Province
835	Kobuk Province
840	Koyukuk Province
845	Bristol Bay Basin
850	Bethel Basin
855	Norton Basin
860	Selawik Basin
863	Yukon Flats Basin
865	Lower Tanana Basin
867	Middle Tanana Basin
870	Upper Tanana Basin
873	Galena Basin
875	Innoko Basin
877	Minchumina Basin
880	Holitna Basin
885	Arctic Foothills Province
890	Arctic Slope Basin
900	Maine Atlantic offshore--general
901	Maine Atlantic offshore--State
902	Maine Atlantic offshore--Federal
903	New Hampshire Atlantic offshore--general
904	New Hampshire Atlantic offshore--State
905	New Hampshire Atlantic offshore--Federal
906	Massachusetts Atlantic offshore--general
907	Massachusetts Atlantic offshore--State
908	Massachusetts Atlantic offshore--Federal
909	Rhode Island Atlantic offshore--general
910	Rhode Island Atlantic offshore--State
911	Rhode Island Atlantic offshore--Federal
912	Connecticut Atlantic offshore--general
913	Connecticut Atlantic offshore--State
914	Connecticut Atlantic offshore--Federal
915	New York Atlantic offshore--general
916	New York Atlantic offshore--State
917	New York Atlantic offshore--Federal
918	New Jersey Atlantic offshore--general
919	New Jersey Atlantic offshore--State
920	New Jersey Atlantic offshore--Federal
921	Delaware Atlantic offshore--general
922	Delaware Atlantic offshore--State
923	Delaware Atlantic offshore--Federal
924	Maryland Atlantic offshore--general
925	Maryland Atlantic offshore--State
926	Maryland Atlantic offshore--Federal

Code	Province
927	Virginia Atlantic offshore--general
928	Virginia Atlantic offshore--State
929	Virginia Atlantic offshore--Federal
930	North Carolina Atlantic offshore--general
931	North Carolina Atlantic offshore--State
932	North Carolina Atlantic offshore--Federal
933	South Carolina Atlantic offshore--general
934	South Carolina Atlantic offshore--State
935	South Carolina Atlantic offshore--Federal
936	Georgia Atlantic offshore--general
937	Georgia Atlantic offshore--State
938	Georgia Atlantic offshore--Federal
939	Florida Atlantic offshore--general
940	Florida Atlantic offshore--State
941	Florida Atlantic offshore--Federal
942	Florida Gulf of Mexico offshore--general
943	Florida Gulf of Mexico offshore--State
944	Florida Gulf of Mexico offshore--Federal
945	Alabama Gulf of Mexico offshore--general
946	Alabama Gulf of Mexico offshore--State
947	Alabama Gulf of Mexico offshore--Federal
948	Mississippi Gulf of Mexico offshore--general
949	Mississippi Gulf of Mexico offshore--State
950	Mississippi Gulf of Mexico offshore--Federal
951	Louisiana Gulf of Mexico offshore--general
952	Louisiana Gulf of Mexico offshore--State
953	Louisiana Gulf of Mexico offshore--Federal
954	Texas Gulf of Mexico offshore--general
955	Texas Gulf of Mexico offshore--State
956	Texas Gulf of Mexico offshore--Federal
957	California Pacific offshore--general
958	California Pacific offshore--State
959	California Pacific offshore--Federal
960	Oregon Pacific offshore--general
961	Oregon Pacific offshore--State
962	Oregon Pacific offshore--Federal
963	Washington Pacific offshore--general
964	Washington Pacific offshore--State
965	Washington Pacific offshore--Federal
972	Alaska Arctic offshore--general
973	Alaska Arctic offshore--State
974	Alaska Arctic offshore--Federal
975	Alaska Bering Sea offshore--general
976	Alaska Bering Sea offshore--State
977	Alaska Bering Sea offshore--Federal
978	Alaska Pacific offshore--general
979	Alaska Pacific offshore--State
980	Alaska Pacific offshore--Federal
987	Minnesota Lake Superior offshore
988	Wisconsin Lake Superior offshore
989	Michigan Lake Superior offshore

Code	Province
990	Indiana Lake Michigan offshore
991	Illinois Lake Michigan offshore
992	Wisconsin Lake Michigan offshore
993	Michigan Lake Michigan offshore
994	Michigan Lake Huron offshore
995	Michigan Lake Erie offshore
996	Ohio Lake Erie offshore
997	Pennsylvania Lake Erie offshore
998	New York Lake Erie offshore
999	New York Lake Ontario offshore

TABLES

The following tables include the results of analyses and related source data from gas samples, which are divided into two groups as follows:

Table 1. - Samples from gas and oil wells in the United States.

Table 2. - Samples from pipelines in the United States.

The following list indicates the sources of the samples listed in the tables:

Source	Number of samples	Tables	Source	Number of samples	Tables
Alabama.....	6	1	New Mexico.....	11	1
Arkansas.....	8	1	New York.....	1	1
California.....	6	1	North Dakota.....	4	1
Colorado.....	21	1	Ohio.....	1	1
Florida.....	1	1	Oklahoma.....	63	1
Indiana.....	1	1	Pennsylvania.....	4	1,2
Kansas.....	24	1	Tennessee.....	2	1
Kentucky.....	3	1	Texas.....	54	1
Louisiana.....	11	1	Utah.....	4	1
Mississippi.....	3	1	West Virginia.....	6	1,2
Montana.....	4	1	Wyoming.....	33	1

All components of the analyses in the tables are reported to the nearest 0.1 pct, except helium, which is reported to the nearest 0.01 pct. The word "trace" is used to denote quantities of helium of less than 0.005 pct and quantities of other components of less than 0.05 pct.

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 1 SAMPLE 16673	INDEX 2 SAMPLE 16599	INDEX 3 SAMPLE 16683
STATE	ALABAMA	ALABAMA	ALABAMA
COUNTY	BALDWIN	ESCAMBIA	FAYETTE
FIELD	FOLEY W	BIG ESCAMBIA CREEK	MUSGROVE CREEK
WELL NAME	DONALD GRANTHAM B 36-4 NO. 2	SCOTT PAPER CO. NO. 5-10-2	WOODWARD 26-9 NO. 1
LOCATION	SEC. 36, T7S, R3E	SEC. 5, T1N, R7E	SEC. 26, T15S, R12W
OWNER	AMOCO PRODUCTION CO.	EXXON CO., U.S.A.	TERRA RESOURCES, INC.
COMPLETED	07/--/82	04/30/82	04/25/82
SAMPLED	09/--/82	07/30/82	09/30/82
FORMATION	-AMOS SD	JURA-SMACKOVER	MISS-CARTER
GEOLOGIC PROVINCE CODE	210	210	200
DEPTH, FEET	1662	15400	2601
WELLHEAD PRESSURE,PSIG	600	1650	650
OPEN FLOW, MCFD	850	8000	1316
COMPONENT, MOLE PCT			
METHANE	97.4	28.9	95.3
ETHANE	0.1	4.2	2.8
PROPANE	TRACE	2.0	0.3
N-BUTANE	0.0	0.8	0.0
ISOBUTANE	0.0	0.5	0.0
N-PENTANE	0.0	0.2	0.0
ISOPENTANE	0.0	0.3	0.0
CYCLOPENTANE	0.0	TRACE	0.0
HEXANES PLUS	0.0	0.1	0.0
NITROGEN	2.2	1.8	1.3
OXYGEN	TRACE	0.6	TRACE
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.1	0.2
HYDROGEN SULFIDE**	0.0	14.6	0.0
CARBON DIOXIDE	0.1	46.0	TRACE
HELIUM	0.01	0.02	0.11
HEATING VALUE*	989	584	1024
SPECIFIC GRAVITY	0.564	1.179	0.575

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 4 SAMPLE 16500	INDEX 5 SAMPLE 16665	INDEX 6 SAMPLE 16501
STATE	ALABAMA	ALABAMA	ALABAMA
COUNTY	LAMAR	LAMAR	LAMAR
FIELD	BLOWHORN CREEK	CROSSVILLE	FERNBANK
WELL NAME	KIMBROUGH 22-1 NO. 1	MURPHY NO. 4-10	BRYANT 30-1 NO. 1
LOCATION	SEC. 22, T14S, R14W	SEC. 4, T15S, R14W	SEC. 30, T17S, R15W
OWNER	PRUET PRODUCTION CO.	HUGHES & HUGHES	PRUET PRODUCTION CO.
COMPLETED	--/--/81	09/24/82	--/--/81
SAMPLED	04/--/82	09/24/82	04/--/82
FORMATION	MISS-MILLERELLA	MISS-MILLERELLA	MISS-LEWIS
GEOLOGIC PROVINCE CODE	200	200	200
DEPTH, FEET	2362	2676	4859
WELLHEAD PRESSURE,PSIG	503	1190	1860
OPEN FLOW, MCFD	560	1547	3050
COMPONENT, MOLE PCT			
METHANE	93.1	92.6	90.8
ETHANE	3.4	3.7	5.3
PROPANE	1.0	1.0	0.1
N-BUTANE	0.7	0.3	TRACE
ISOBUTANE	0.2	0.2	0.2
N-PENTANE	0.2	0.1	0.0
ISOPENTANE	0.2	0.2	0.1
CYCLOPENTANE	0.1	0.1	0.1
HEXANES PLUS	0.1	0.1	0.1
NITROGEN	0.7	1.4	1.5
OXYGEN	0.1	TRACE	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.0	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	TRACE	1.5
HELIUM	0.04	0.09	0.09
HEATING VALUE*	1086	1069	1037
SPECIFIC GRAVITY	0.611	0.605	0.611

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 7 SAMPLE 16710	INDEX 8 SAMPLE 16572	INDEX 9 SAMPLE 16720
STATE	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY	CRAWFORD	JOHNSON	LOGAN
FIELD	KIBLER-WILLIAMS	SPADRA	DELAWARE
WELL NAME	CLAUDE MEADORS NO. 2-14	HURLEY ENTERPRISE NO. 1-20	CHARLES NO. 1-33
LOCATION	SEC. 14, T9N, R30W	SEC. 20, T9N, R23W	SEC. 33, T8N, R22W
OWNER	GULF OIL EXPL. & PROD. CO.	HAWKINS OIL & GAS, INC.	HADSON PETROLEUM CO.
COMPLETED	04/06/82	--/--/81	04/--/81
SAMPLED	10/18/82	07/08/82	11/05/82
FORMATION	PENN-PAUL BARTON	PENN-BARTON & DUNN	PENN-CARPENTER
GEOLOGIC PROVINCE CODE	345	345	345
DEPTH, FEET	6041	6790	NOT GIVEN
WELLHEAD PRESSURE,PSIG	1156	893	447
OPEN FLOW, MCFD	2456	3112	3397
COMPONENT, MOLE PCT			
METHANE	96.9	96.9	93.1
ETHANE	1.3	1.3	0.9
PROPANE	0.2	0.1	0.1
N-BUTANE	0.0	0.0	TRACE
ISOBUTANE	0.0	0.0	TRACE
N-PENTANE	0.0	0.0	TRACE
ISOPENTANE	0.0	0.0	0.0
CYCLOPENTANE	0.0	0.0	0.1
HEXANES PLUS	0.0	0.0	TRACE
NITROGEN	0.3	0.3	4.1
OXYGEN	TRACE	0.0	0.2
ARGON	TRACE	TRACE	0.1
HYDROGEN	0.2	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.9	1.1	1.1
HELIUM	0.06	0.07	0.13
HEATING VALUE*	1011	1008	966
SPECIFIC GRAVITY	0.571	0.572	0.590

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 10 SAMPLE 16631	INDEX 11 SAMPLE 16632	INDEX 12 SAMPLE 16454
STATE	ARKANSAS	ARKANSAS	ARKANSAS
COUNTY	LOGAN	LOGAN	POPE
FIELD	PARIS	PARIS	MORELAND
WELL NAME	WOOD NO.1-T	WOOD NO.1-T	HUDSON NO. 1-8
LOCATION	SEC. 8, T8N, R25W	SEC. 8, T8N, R25W	SEC. 8, T8N, R19W
OWNER	ARKOMA PRODUCTION CO.	ARKOMA PRODUCTION CO.	CHARLES E. MCCRAY & ASSOC.
COMPLETED	12/29/81	12/29/81	12/15/81
SAMPLED	09/03/82	09/03/82	03/17/82
FORMATION	PENN-DUNN C	PENN-R. BARTON	PENN-HALE
GEOLOGIC PROVINCE CODE	345	345	345
DEPTH, FEET	6198	6023	5081
WELLHEAD PRESSURE,PSIG	1110	1050	1600
OPEN FLOW, MCFD	700	800	1000
COMPONENT, MOLE PCT			
METHANE	94.7	95.6	97.6
ETHANE	0.8	0.9	1.3
PROPANE	0.1	0.1	0.1
N-BUTANE	0.1	0.0	0.0
ISOBUTANE	0.0	0.0	0.0
N-PENTANE	0.1	0.0	0.0
ISOPENTANE	TRACE	0.0	0.0
CYCLOPENTANE	TRACE	0.0	0.0
HEXANES PLUS	TRACE	0.0	0.0
NITROGEN	2.1	1.4	0.7
OXYGEN	0.5	0.3	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.1	TRACE
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	1.3	1.4	TRACE
HELIUM	0.16	0.15	0.09
HEATING VALUE*	984	987	1015
SPECIFIC GRAVITY	0.586	0.579	0.564

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 13 SAMPLE 16427	INDEX 14 SAMPLE 16593	INDEX 15 SAMPLE 16730
STATE	ARKANSAS	ARKANSAS	CALIFORNIA
COUNTY	POPE	SEBASTIAN	CONTRA COSTA
FIELD	OAK GROVE	BONANZA	DUTCH SLOUGH
WELL NAME	TEAGUE NO. 21-1	REVERE TROTTER NO. 1	LOO NO. 1 REDRILL NO. 4
LOCATION	SEC. 21, T8N, R18W	SEC. 12, T6N, R32W	SEC. 31, T2N, R3E
OWNER	TOWNER PETROLEUM CO.	REVERE CORP.	ATLANTIC OIL CO.
COMPLETED	01/24/82	07/--/82	05/28/81
SAMPLED	01/24/82	07/20/82	12/13/82
FORMATION	PENN-BARTON	PENN-ATOKA U	CRET-3RD MASSIVE
GEOLOGIC PROVINCE CODE	345	345	730
DEPTH, FEET	4692	3488	8034
WELLHEAD PRESSURE,PSIG	1566	360	2882
OPEN FLOW, MCFD	3000	1750	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	94.2	97.4	90.4
ETHANE	0.8	1.3	3.6
PROPANE	0.1	0.1	1.2
N-BUTANE	0.0	0.0	0.2
ISOBUTANE	0.0	0.0	0.4
N-PENTANE	0.0	0.0	0.0
ISOPENTANE	0.0	0.0	1.5
CYCLOPENTANE	0.0	0.0	0.8
HEXANES PLUS	0.0	0.0	0.6
NITROGEN	4.1	0.2	0.7
OXYGEN	0.1	0.0	TRACE
ARGON	0.1	0.1	0.0
HYDROGEN	TRACE	0.1	0.2
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.4	0.6	0.5
HELIUM	0.29	0.06	TRACE
HEATING VALUE*	971	1013	1157
SPECIFIC GRAVITY	0.581	0.568	0.659

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 16 SAMPLE 16543	INDEX 17 SAMPLE 16524	INDEX 18 SAMPLE 16719
STATE	CALIFORNIA	CALIFORNIA	CALIFORNIA
COUNTY	GLENN	KERN	SACRAMENTO
FIELD	PRINCETON	BOWERBANK	SACRAMENTO AIRPORT
WELL NAME	TORRES NO. 1-18	SALISBURY NO. 3	CHILTON NO. 1-2
LOCATION	SEC. 18, T18N, R1W	SEC. 7, T29S, R24E	SEC. 2, T9N, R3E
OWNER	JORDAN OIL & GAS CO.	TEXACO U.S.A.	SHELL CALIFORNIA PROD., INC.
COMPLETED	--/--/82	04/05/81	05/04/82
SAMPLED	06/10/82	05/24/82	11/30/82
FORMATION	NOT GIVEN	PLIO-2ND MYA & ROOT U	CRET-MORENO
GEOLOGIC PROVINCE CODE	730	745	730
DEPTH, FEET	NOT GIVEN	3418	3000
WELLHEAD PRESSURE,PSIG	950	900	1130
OPEN FLOW, MCFD	905	310	500
COMPONENT, MOLE PCT			
METHANE	86.7	99.1	70.3
ETHANE	TRACE	0.1	TRACE
PROPANE	TRACE	TRACE	0.1
N-BUTANE	0.0	0.0	0.2
ISOBUTANE	0.0	0.0	TRACE
N-PENTANE	0.0	0.0	0.1
ISOPENTANE	0.0	0.0	0.2
CYCLOPENTANE	0.0	0.0	0.1
HEXANES PLUS	0.0	0.0	0.2
NITROGEN	13.1	0.6	28.5
OXYGEN	TRACE	0.1	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	0.1	TRACE
HELIUM	TRACE	TRACE	0.01
HEATING VALUE*	879	1006	749
SPECIFIC GRAVITY	0.609	0.559	0.688

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H_2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 19 SAMPLE 16552	INDEX 20 SAMPLE 16639	INDEX 21 SAMPLE 16510
STATE	CALIFORNIA	CALIFORNIA	COLORADO
COUNTY	SACRAMENTO	SOLANO	CHEYENNE
FIELD	STONE LAKE	NOT GIVEN	ARCHER
WELL NAME	ELLIOTT RANCH NO. 1-73	BOTTOM MUD IN RESERVOIR	PELTON 41-31 NO. 1
LOCATION	SEC. 1, T6N, R4E	SOLANO RES. ON PUTACH CR.	SEC. 31, T12S, R44W
OWNER	ARGO PETROLEUM CORP.	U.S. BUREAU OF RECLAMATION	CHAMPLIN PETROLEUM CO.
COMPLETED	06/15/32	99/99/99	07/31/81
SAMPLED	06/15/32	09/07/82	04/28/82
FORMATION	NOT GIVEN	HOLO-	PENN-MORROW
GEOLOGIC PROVINCE CODE	730	730	450
DEPTH, FEET	NOT GIVEN	NOT GIVEN	5314
WELLHEAD PRESSURE,PSIG	1100	NOT GIVEN	825
OPEN FLOW, MCFD	NOT GIVEN	NOT GIVEN	5500
COMPONENT, MOLE PCT			
METHANE	87.3	36.9	22.3
ETHANE	0.3	TRACE	2.4
PROPANE	0.1	0.0	2.1
N-BUTANE	0.0	0.0	1.1
ISOBUTANE	0.0	0.0	0.4
N-PENTANE	0.0	0.0	0.4
ISOPENTANE	0.0	0.0	0.4
CYCLOPENTANE	0.0	0.0	0.2
HEXANES PLUS	0.0	0.0	0.3
NITROGEN	12.0	59.7	63.9
OXYGEN	0.0	1.7	TRACE
ARGON	TRACE	0.8	0.4
HYDROGEN	0.1	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.2	0.8	0.8
HELIUM	TRACE	TRACE	5.20
HEATING VALUE*	893	374	431
SPECIFIC GRAVITY	0.608	0.824	0.889

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 22 SAMPLE 16573	INDEX 23 SAMPLE 16515	INDEX 24 SAMPLE 16645
STATE	COLORADO	COLORADO	COLORADO
COUNTY	CHEYENNE	DOLORES	GARFIELD
FIELD	SORRENTO	NOT GIVEN	BRIDLE
WELL NAME	MCCORMICK B NO. 2	FED. NO. 1-35	FED. NO. 23-4
LOCATION	SEC. 10, T14S, R49W	SEC. 35, T40N, R16W	SEC. 4, T8S, R104W
OWNER	MULL DRILLING CO., INC.	SANTA FE ENERGY CO.	TEXAS GAS EXPL. CORP.
COMPLETED	07/12/82	02/17/81	04/15/81
SAMPLED	07/12/82	05/06/82	09/11/82
FORMATION	PENN-MORROW	PENN-HERMOSA	CRET-DAKOTA
GEOLOGIC PROVINCE CODE	450	585	595
DEPTH, FEET	5454	5254	3376
WELLHEAD PRESSURE,PSIG	700	1025	NOT GIVEN
OPEN FLOW, MCFD	NOT GIVEN	200	2306
COMPONENT, MOLE PCT			
METHANE	41.3	88.1	81.1
ETHANE	7.1	4.0	4.3
PROPANE	4.6	0.7	1.4
N-BUTANE	1.3	0.0	0.4
ISOBUTANE	0.4	0.0	0.3
N-PENTANE	0.3	0.0	0.1
ISOPENTANE	0.2	0.0	0.3
CYCLOPENTANE	TRACE	0.0	0.1
HEXANES PLUS	0.1	0.0	0.2
NITROGEN	42.2	6.8	6.1
OXYGEN	0.0	0.0	TRACE
ARGON	0.2	TRACE	0.1
HYDROGEN	0.2	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	0.1	5.3
HELIUM	1.98	0.07	0.37
HEATING VALUE*	749	983	990
SPECIFIC GRAVITY	0.841	0.609	0.691

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H_2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 25 SAMPLE 16401	INDEX 26 SAMPLE 16423	INDEX 27 SAMPLE 16461
STATE	COLORADO	COLORADO	COLORADO
COUNTY	GARFIELD	GARFIELD	GARFIELD
FIELD	CLOUGH-RULISON	DOUGLAS CREEK ARCH	GASAWAY UNIT
WELL NAME	CLOUGH NO. 113	DOUGLAS PASS USA NO. 20-15	SHEFFIELD NO. 1-17
LOCATION	SEC. 21, T6S, R94W	SEC. 20, T5S, R102W	SEC. 17, T6S, R99W
OWNER	NORTHWEST EXPLORATION CO.	TENNECO OIL EXPL. & PROD. CO	NUCORP ENERGY, INC.
COMPLETED	11/15/80	06/11/81	11/01/81
SAMPLED	12/22/81	02/02/82	03/23/82
FORMATION	EOCE-WASATCH	CRET-DAKOTA	CRET-DAKOTA
GEOLOGIC PROVINCE CODE	595	595	595
DEPTH, FEET	995	5976	8850
WELLHEAD PRESSURE,PSIG	230	1240	1000
OPEN FLOW, MCFD	425	1200	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	94.3	70.9	93.4
ETHANE	3.4	3.8	0.1
PROPANE	1.0	1.2	TRACE
N-BUTANE	0.3	0.4	0.0
ISOBUTANE	0.2	0.2	0.0
N-PENTANE	0.1	0.1	0.0
ISOPENTANE	0.1	0.1	0.0
CYCLOPENTANE	0.1	TRACE	0.0
HEXANES PLUS	0.2	0.1	0.0
NITROGEN	0.3	16.7	0.2
OXYGEN	0.0	TRACE	0.0
ARGON	TRACE	0.1	TRACE
HYDROGEN	0.0	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.0	5.2	6.3
HELIUM	0.01	0.87	TRACE
HEATING VALUE*	1082	852	948
SPECIFIC GRAVITY	0.601	0.716	0.617

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 28 SAMPLE 16516	INDEX 29 SAMPLE 16517	INDEX 30 SAMPLE 16718
STATE	COLORADO	COLORADO	COLORADO
COUNTY	GARFIELD	GARFIELD	GARFIELD
FIELD	UNDESIGNATED	UNDESIGNATED	UNDESIGNATED
WELL NAME	U.S.A. NO. 1-5 LW	U.S.A. NO. 1-6 LW	U.S.A. NO. 1-6 LW
LOCATION	SEC. 5, T8S, R97W	SEC. 6, T8S, R97W	SEC. 6, T8S, R97W
OWNER	COORS ENERGY CO.	COORS ENERGY CO.	COORS ENERGY CO.
COMPLETED	07/08/81	07/26/80	07/26/80
SAMPLED	05/11/82	05/10/82	11/24/82
FORMATION	CRET-COZETTE CORCORAN	CRET-COZETTE CORCORAN	CRET-COZETTE CORCORAN
GEOLOGIC PROVINCE CODE	595	595	595
DEPTH, FEET	4331	4333	4333
WELLHEAD PRESSURE,PSIG	1075	1354	NOT GIVEN
OPEN FLOW, MCFD	338	8873	455
COMPONENT, MOLE PCT			
METHANE	87.5	83.7	86.7
ETHANE	6.6	5.4	6.9
PROPANE	2.0	2.0	2.4
N-BUTANE	0.4	0.7	0.5
ISOBUTANE	0.4	0.6	0.5
N-PENTANE	0.1	0.3	0.1
ISOPENTANE	0.2	0.5	0.4
CYCLOPENTANE	0.1	0.1	0.1
HEXANES PLUS	0.2	0.4	0.3
NITROGEN	0.4	4.0	0.2
OXYGEN	0.1	1.0	0.0
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.0	0.0	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	2.1	1.4	1.8
HELIUM	TRACE	TRACE	TRACE
HEATING VALUE*	1110	1099	1139
SPECIFIC GRAVITY	0.655	0.684	0.664

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 31 SAMPLE 16508	INDEX 32 SAMPLE 16404	INDEX 33 SAMPLE 16731
STATE	COLORADO	COLORADO	COLORADO
COUNTY	LA PLATA	MESA	MESA
FIELD	IGNACIO	HUNTERS CANYON	ROBERTS CANYON-SHIRE GULCH
WELL NAME	GEARHART NO. 1-31	HUNTERS CANYON UNIT NO. 6	HORSESHOE CANYON NO. 1-29-97
LOCATION	SEC. 31, T35N, R7W	SEC. 30, T8S, R100W	SEC. 29, T9S, R97W
OWNER	NATOMAS OF NORTH AMERICA INC	WALTER S. FEES, JR.	KOCH EXPLORATION CO.
COMPLETED	NOT GIVEN	10/03/80	04/10/82
SAMPLED	04/30/82	12/17/81	12/10/82
FORMATION	CRET-DAKOTA	CRET-DAKOTA	CRET-HUNTER CANYON
GEOLOGIC PROVINCE CODE	580	595	595
DEPTH, FEET	7396	6208	7000
WELLHEAD PRESSURE,PSIG	NOT GIVEN	1500	1900
OPEN FLOW, MCFD	NOT GIVEN	2800	2500
COMPONENT, MOLE PCT			
METHANE	94.2	95.3	92.7
ETHANE	TRACE	0.8	1.3
PROPANE	TRACE	0.2	0.2
N-BUTANE	0.0	0.0	TRACE
ISOBUTANE	0.0	0.0	TRACE
N-PENTANE	0.0	0.0	0.0
ISOPENTANE	0.0	0.0	0.3
CYCLOPENTANE	0.0	0.0	0.4
HEXANES PLUS	0.0	0.0	0.4
NITROGEN	0.4	0.9	0.5
OXYGEN	0.1	0.1	TRACE
ARGON	TRACE	TRACE	0.0
HYDROGEN	TRACE	TRACE	0.2
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	5.3	2.6	3.9
HELIUM	TRACE	0.06	0.05
HEATING VALUE*	954	985	1017
SPECIFIC GRAVITY	0.608	0.590	0.624

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 34 SAMPLE 16711	INDEX 35 SAMPLE 16483	INDEX 36 SAMPLE 16595
STATE	COLORADO	COLORADO	COLORADO
COUNTY	MESA	MOFFAT	MORGAN
FIELD	WILDCAT	POWDER WASH	HAPPY DOG
WELL NAME	U.S.A. NO. 1-14 HC	MOUNTAIN FUEL FED. NO. 1-12	STATE D2
LOCATION	SEC. 14, T9S, R98W	SEC. 12, T11N, R98W	SEC. 12, T5N, R59W
OWNER	COORS ENERGY CO.	IMPERIAL OIL CO.	REGAL PETROLEUM LTD.
COMPLETED	04/23/82	01/04/82	06/12/81
SAMPLED	11/22/82	04/07/82	07/--/82
FORMATION	CRET-DAKOTA	EOCE-FORT UNION	CRET-D SAND
GEOLOGIC PROVINCE CODE	595	535	540
DEPTH, FEET	7030	6824	6270
WELLHEAD PRESSURE,PSIG	1750	2100	600
OPEN FLOW, MCFD	NOT GIVEN	1800	2083
COMPONENT, MOLE PCT			
METHANE	43.4	91.3	74.1
ETHANE	0.2	4.3	9.5
PROPANE	TRACE	1.9	7.5
N-BUTANE	0.0	0.6	2.5
ISOBUTANE	0.0	0.4	0.9
N-PENTANE	0.0	0.2	0.6
ISOPENTANE	0.0	0.1	0.7
CYCLOPENTANE	0.0	0.1	0.3
HEXANES PLUS	0.0	0.2	0.4
NITROGEN	2.3	0.7	1.7
OXYGEN	TRACE	0.1	TRACE
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.1	0.0	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	53.7	0.0	1.7
HELIUM	0.27	0.01	0.04
HEATING VALUE*	444	1112	1318
SPECIFIC GRAVITY	1.087	0.625	0.792

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 37 SAMPLE 16403	INDEX 38 SAMPLE 16432	INDEX 39 SAMPLE 16652
STATE	COLORADO	COLORADO	COLORADO
COUNTY	PROWERS	WASHINGTON	WELD
FIELD	CLYDE	DE NOVA	NOT GIVEN
WELL NAME	SCHMIDT NO. 1-15X	MATHIES NO. 2-19	JOHN FORD NO. 1
LOCATION	SEC. 15, T22S, R45W	SEC. 19, T2S, R49W	SEC. 28, T7N, R59W
OWNER	MURFIN DRILLING CO.	STELBAR OIL CORP., INC.	BELLWETHER EXPL. CO.
COMPLETED	10/24/80	11/09/81	09/12/81
SAMPLED	12/16/81	02/19/82	09/10/82
FORMATION	PENN-MORROW	CRET-NIOBRARA	CRET-DAKOTA D
GEOLOGIC PROVINCE CODE	360	540	540
DEPTH, FEET	4711	2890	6636
WELLHEAD PRESSURE,PSIG	860	690	825
OPEN FLOW, MCFD	6000	2056	500
COMPONENT, MOLE PCT			
METHANE	63.7	95.0	70.8
ETHANE	12.2	0.8	11.8
PROPANE	6.2	0.4	8.6
N-BUTANE	1.4	0.1	2.6
ISOBUTANE	0.6	0.1	1.6
N-PENTANE	0.3	0.0	0.0
ISOPENTANE	0.2	0.1	0.2
CYCLOPENTANE	0.1	TRACE	TRACE
HEXANES PLUS	0.2	TRACE	0.3
NITROGEN	14.3	3.0	1.9
OXYGEN	0.0	0.0	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	TRACE	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.2	0.4	1.9
HELIUM	0.70	0.04	0.04
HEATING VALUE*	1128	998	1318
SPECIFIC GRAVITY	0.782	0.583	0.800

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 40 SAMPLE 16623	INDEX 41 SAMPLE 16440	INDEX 42 SAMPLE 16597
STATE	COLORADO	COLORADO	FLORIDA
COUNTY	YUMA	YUMA	ESCAMBIA
FIELD	BONNY	UNNAMED	JAY/LITTLE ESCAMBIA CREEK
WELL NAME	GROSECLOSE NO. 32-30	LENGEL NO. 1-18	MCDAVID LANDS NO. 31-2A
LOCATION	SEC. 30, T4S, R43W	SEC. 18, T4S, R43W	SEC. 31, T6N, R29W
OWNER	JOHN P. LOCKRIDGE	J-W OPERATING CO.	EXXON CO., U.S.A.
COMPLETED	08/24/82	11/12/81	04/12/82
SAMPLED	08/24/82	03/--/82	07/30/82
FORMATION	CRET-NIOBRARA	CRET-SMOKY HILL	JURA-SMACKOVER
GEOLOGIC PROVINCE CODE	540	540	210
DEPTH, FEET	1726	1652	15500
WELLHEAD PRESSURE,PSIG	360	263	1200
OPEN FLOW, MCFD	4230	597	4000
COMPONENT, MOLE PCT			
METHANE	93.4	91.4	54.8
ETHANE	1.2	1.1	13.0
PROPANE	0.3	0.4	7.3
N-BUTANE	0.2	0.0	2.9
ISOBUTANE	0.0	0.0	1.8
N-PENTANE	TRACE	0.0	0.9
ISOPENTANE	TRACE	0.0	1.1
CYCLOPENTANE	TRACE	0.0	0.2
HEXANES PLUS	TRACE	0.0	0.7
NITROGEN	4.3	4.2	3.8
OXYGEN	0.0	0.0	0.4
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	9.5
CARBON DIOXIDE	0.3	2.7	3.5
HELIUM	0.07	0.07	0.01
HEATING VALUE*	983	956	1326
SPECIFIC GRAVITY	0.586	0.607	0.935

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 43 SAMPLE 16455	INDEX 44 SAMPLE 16473	INDEX 45 SAMPLE 16486
STATE	INDIANA	KANSAS	KANSAS
COUNTY	SPENCER	BARBER	BARBER
FIELD	RICHLAND CITY N	DEERHEAD N	HARTLEY
WELL NAME	B. SCHNACKE NO. 1	RIDIN INTO HELL&BK AGAIN NO1	HAMILTON "A" NO. 1
LOCATION	SEC. 35, T6S, R7W	SEC. 14, T32S, R15W	SEC. 34, T30S, R13W
OWNER	IND. FARM BUREAU COOP. ASSN.	WILD BOYS&SIL. BULLET OIL CO	TXO PRODUCTION CORP.
COMPLETED	NOT GIVEN	08/25/81	01/09/81
SAMPLED	03/17/82	03/30/82	04/12/82
FORMATION	PENN-	MISS-	PENN-DOUGLAS
GEOLOGIC PROVINCE CODE	315	375	375
DEPTH, FEET	972	4769	3820
WELLHEAD PRESSURE,PSIG	570	1320	1003
OPEN FLOW, MCFD	1000	1500	690
COMPONENT, MOLE PCT			
METHANE	95.6	81.6	81.9
ETHANE	0.0	6.0	4.8
PROPANE	0.0	2.6	3.4
N-BUTANE	0.0	0.8	1.1
ISOBUTANE	0.0	0.4	0.4
N-PENTANE	0.0	0.3	0.3
ISOPENTANE	0.0	0.0	0.2
CYCLOPENTANE	0.0	0.2	TRACE
HEXANES PLUS	0.0	0.4	0.1
NITROGEN	3.2	7.3	7.6
OXYGEN	0.4	TRACE	0.0
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.0	0.0	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.8	0.0	0.0
HELIUM	0.07	0.42	0.26
HEATING VALUE*	968	1083	1081
SPECIFIC GRAVITY	0.578	0.676	0.678

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 46 SAMPLE 16650	INDEX 47 SAMPLE 16541	INDEX 48 SAMPLE 16600
STATE	KANSAS	KANSAS	KANSAS
COUNTY	CHEYENNE	COMANCHE	EDWARDS
FIELD	CHERRY CREEK	BLUFF CREEK	ENGLISH NW
WELL NAME	FRITZ NO. A-1	SCHEUFLER NO. 21-5	TURNER NO. 1
LOCATION	SEC. 25, T4S, R40W	SEC. 21, T33S, R20W	SEC. 26, T25S, R17W
OWNER	NIELSON ENTERPRISES, INC.	SAMUEL GARY, OIL PRODUCER	LEBSACK OIL PRODUCTION, INC.
COMPLETED	11/24/81	01/27/82	08/02/82
SAMPLED	09/15/82	06/10/82	08/02/82
FORMATION	CRET-NIOBRARA	PENN-MORROW & MISS	MISS-CHERT
GEOLOGIC PROVINCE CODE	450	360	360
DEPTH, FEET	1292	5255	4474
WELLHEAD PRESSURE,PSIG	300	1453	1120
OPEN FLOW, MCFD	50	2100	300
COMPONENT, MOLE PCT			
METHANE	93.6	89.1	88.7
ETHANE	1.3	0.5	3.3
PROPANE	0.4	1.0	1.1
N-BUTANE	0.1	0.5	0.4
ISOBUTANE	TRACE	0.2	0.2
N-PENTANE	0.1	0.1	0.1
ISOPENTANE	TRACE	0.1	0.2
CYCLOPENTANE	TRACE	0.1	0.1
HEXANES PLUS	TRACE	0.1	0.2
NITROGEN	4.1	7.6	4.8
OXYGEN	0.1	0.0	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	TRACE	0.1	0.2
HELIUM	0.08	0.38	0.47
HEATING VALUE*	990	979	1034
SPECIFIC GRAVITY	0.584	0.615	0.623

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 49 SAMPLE 16676	INDEX 50 SAMPLE 16685	INDEX 51 SAMPLE 16739
STATE	KANSAS	KANSAS	KANSAS
COUNTY	EDWARDS	EDWARDS	ELLSWORTH
FIELD	ENGLISH NW	WILDCAT	GREEN GARDEN
WELL NAME	EUGENE FISHER NO. 1	STRATE NO. 1-8	MARIE WAMHOFF NO. 1
LOCATION	SEC. 25, T25S, R17W	SEC. 8, T25S, R18W	SEC. 36, T16S, R9W
OWNER	PETROMARK EXPLORATION, INC.	IMPERIAL OIL CO.	AMERICAN PETROFINA CO. OF TX
COMPLETED	09/15/81	08/03/82	05/05/82
SAMPLED	09/29/82	10/07/82	12/17/82
FORMATION	MISS-	PENN-CHEROKEE	PENN-SEVERY SD
GEOLOGIC PROVINCE CODE	360	360	385
DEPTH, FEET	4428	4565	2445
WELLHEAD PRESSURE,PSIG	1300	1260	825
OPEN FLOW, MCFD	340	3500	970
COMPONENT, MOLE PCT			
METHANE	88.7	80.4	55.8
ETHANE	3.3	3.3	2.2
PROPANE	1.1	1.3	1.1
N-BUTANE	0.4	0.4	0.2
ISOBUTANE	0.2	0.2	0.2
N-PENTANE	0.1	0.2	0.0
ISOPENTANE	0.2	0.2	0.1
CYCLOPENTANE	0.1	TRACE	0.1
HEXANES PLUS	0.1	0.1	0.1
NITROGEN	4.9	10.5	38.6
OXYGEN	0.1	0.2	TRACE
ARGON	TRACE	0.1	0.1
HYDROGEN	0.1	0.3	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.2	2.1	0.3
HELIUM	0.45	0.66	1.15
HEATING VALUE*	1028	951	660
SPECIFIC GRAVITY	0.621	0.664	0.747

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 52 SAMPLE 16583	INDEX 53 SAMPLE 16702	INDEX 54 SAMPLE 16703
STATE	KANSAS	KANSAS	KANSAS
COUNTY	ELLSWORTH	HARPER	HARPER
FIELD	WILDCAT	SULLIVAN	SULLIVAN
WELL NAME	KRUSE NO. 1	FINDLEY "B" NO. 1	ANTRIM "A" NO. 2
LOCATION	SEC. 20, T17S, R9W	SEC. 27, T32S, R8W	SEC. 30, T32S, R8W
OWNER	PATTON OIL CO.	TXO PRODUCTION CORP.	TXO PRODUCTION CORP.
COMPLETED	01/20/82	07/27/82	09/13/82
SAMPLED	07/20/82	10/27/82	10/27/82
FORMATION	PENN-STOTLER	PENN-STALNAKER	PENN-STALNAKER
GEOLOGIC PROVINCE CODE	385	375	375
DEPTH, FEET	2134	NOT GIVEN	NOT GIVEN
WELLHEAD PRESSURE,PSIG	670	1324	1232
OPEN FLOW, MCFD	950	4298	17378
COMPONENT, MOLE PCT			
METHANE	61.9	75.3	78.6
ETHANE	1.9	3.3	3.3
PROPANE	0.7	2.8	2.6
N-BUTANE	0.2	1.0	1.1
ISOBUTANE	0.1	0.6	0.5
N-PENTANE	0.1	0.3	0.4
ISOPENTANE	TRACE	0.3	0.4
CYCLOPENTANE	TRACE	0.1	0.2
HEXANES PLUS	0.1	0.2	0.3
NITROGEN	33.8	15.3	10.0
OXYGEN	0.0	TRACE	0.1
ARGON	0.1	TRACE	2.1
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	0.1	0.1
HELIUM	1.12	0.40	0.33
HEATING VALUE*	699	988	1034
SPECIFIC GRAVITY	0.717	0.702	0.707

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 55 SAMPLE 16704	INDEX 56 SAMPLE 16705	INDEX 57 SAMPLE 16578
STATE	KANSAS	KANSAS	KANSAS
COUNTY	HARPER	HARPER	KINGMAN
FIELD	SULLIVAN	ZUERCHER	ORESDEN
WELL NAME	ROBINSON "G" NO. 2	ZUERCHER NO. 3	GRIDLEY NO. 1
LOCATION	SEC. 22, T32S, R8W	SEC. 9, T32S, R7W	SEC. 15, T27S, R10W
OWNER	TXO PRODUCTION CORP.	TXO PRODUCTION CORP.	PATTON OIL CO.
COMPLETED	05/18/82	06/07/82	04/20/82
SAMPLED	10/27/82	10/27/82	07/17/82
FORMATION	PENN-STALNAKER	MISS-	MISS-
GEOLOGIC PROVINCE CODE	375	375	375
DEPTH, FEET	NOT GIVEN	NOT GIVEN	4014
WELLHEAD PRESSURE,PSIG	1300	1493	1140
OPEN FLOW, MCFD	1302	766	3490
COMPONENT, MOLE PCT			
METHANE	75.5	82.5	71.7
ETHANE	3.4	6.5	6.2
PROPANE	2.8	2.9	3.5
N-BUTANE	1.0	1.1	1.2
ISOBUTANE	0.6	0.3	0.4
N-PENTANE	0.3	0.3	0.3
ISOPENTANE	0.4	0.5	0.3
CYCLOPENTANE	0.1	0.1	0.1
HEXANES PLUS	0.2	0.2	0.2
NITROGEN	15.0	5.0	14.5
OXYGEN	0.2	0.0	0.0
ARGON	TRACE	TRACE	0.1
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	0.1	TRACE
HELIUM	0.38	0.31	1.14
HEATING VALUE*	997	1123	1022
SPECIFIC GRAVITY	0.706	0.678	0.717

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 58 SAMPLE 16641	INDEX 59 SAMPLE 16675	INDEX 60 SAMPLE 16484
STATE	KANSAS	KANSAS	KANSAS
COUNTY	KINGMAN	KIOWA	MORTON
FIELD	NASHVILLE	V O D	ROLLA N
WELL NAME	KATZER NO.1-A	MATTHEWS NO. 2	THRASH "A" NO. 1
LOCATION	SEC. 10, T30S, R10W	SEC. 7, T27S, R6W	SEC. 8, T33S, R39W
OWNER	RAYMOND OIL CO., INC.	BEREN CORP.	ANADARKO PRODUCTION CO.
COMPLETED	07/30/82	12/--/81	--/--/81
SAMPLED	09/10/82	09/29/82	04/12/82
FORMATION	PENN-HOWARD	PENN-CHEROKEE SD	PENN-MORROW
GEOLOGIC PROVINCE CODE	375	360	360
DEPTH, FEET	2994	4566	5949
WELLHEAD PRESSURE,PSIG	1038	1360	1410
OPEN FLOW, MCFD	2190	4750	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	73.8	86.9	92.7
ETHANE	3.3	3.6	2.7
PROPANE	1.4	1.5	1.1
N-BUTANE	0.4	0.5	0.4
ISOBUTANE	0.2	0.3	0.2
N-PENTANE	0.1	0.2	0.1
ISOPENTANE	0.1	0.1	0.1
CYCLOPENTANE	0.1	0.1	0.1
HEXANES PLUS	0.1	0.2	0.2
NITROGEN	18.3	5.6	2.0
OXYGEN	1.7	0.2	0.1
ARGON	0.1	TRACE	TRACE
HYDROGEN	0.1	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	0.2	0.2
HELIUM	0.31	0.42	0.16
HEATING VALUE*	861	1038	1059
SPECIFIC GRAVITY	0.688	0.635	0.609

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 61 SAMPLE 16735	INDEX 62 SAMPLE 16409	INDEX 63 SAMPLE 16453
STATE	KANSAS	KANSAS	KANSAS
COUNTY	PRATT	PRATT	RENO
FIELD	CHANCE	EMMA	ZENITH PEACE CREEK
WELL NAME	MCGUIRE NO. 1	LEMON NO. 4-7	BURNS NO. 1
LOCATION	SEC. 5, T27S, R13W	SEC. 7, T27S, R15W	SEC. 7, T23S, R9W
OWNER	EAGLE EXPLORATION, INC.	IMPERIAL OIL CO.	ZENITH DRLG. CORP., INC.
COMPLETED	05/28/82	10/22/81	03/15/82
SAMPLED	12/14/82	01/15/82	03/15/82
FORMATION	MISS-	MISS-KINDERHOOK	MISS-
GEOLOGIC PROVINCE CODE	385	385	375
DEPTH, FEET	4236	4500	3574
WELLHEAD PRESSURE,PSIG	1080	1375	1139
OPEN FLOW, MCFD	2300	2000	2794
COMPONENT, MOLE PCT			
METHANE	64.7	84.9	74.1
ETHANE	6.1	3.7	6.8
PROPANE	4.2	1.4	3.0
N-BUTANE	1.5	0.4	1.1
ISOBUTANE	0.7	0.1	0.4
N-PENTANE	0.4	0.2	0.4
ISOPENTANE	0.4	0.0	0.2
CYCLOPENTANE	0.1	0.2	0.2
HEXANES PLUS	0.2	0.3	0.3
NITROGEN	19.9	7.6	12.7
OXYGEN	TRACE	0.1	0.1
ARGON	0.1	TRACE	TRACE
HYDROGEN	0.1	0.0	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	TRACE	0.0
HELIUM	1.55	0.99	0.77
HEATING VALUE*	996	1011	1049
SPECIFIC GRAVITY	0.760	0.636	0.714

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 64 SAMPLE 16556	INDEX 65 SAMPLE 16531	INDEX 66 SAMPLE 16532
STATE	KANSAS	KANSAS	KANSAS
COUNTY	SEWARD	SEWARD	SEWARD
FIELD	ARKALON	SHUCK	SHUCK
WELL NAME	HAYS NO. 1	KOCH "A" NO. 3	GROSSARDT "A" NO. 1
LOCATION	SEC. 9, T34S, R31W	SEC. 15, T33S, R34W	SEC. 10, T33S, R34W
OWNER	INCA OIL CO.	ANADARKO PRODUCTION CO.	ANADARKO PRODUCTION CO.
COMPLETED	02/10/82	01/09/82	02/04/82
SAMPLED	06/25/82	06/02/82	06/02/82
FORMATION	PENN-MORROW U	MISS-CHESTER	MISS-CHESTER
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	5606	5936	6157
WELLHEAD PRESSURE,PSIG	1562	1879	1406
OPEN FLOW, MCFD	4200	1200	3046
COMPONENT, MOLE PCT			
METHANE	78.1	85.9	85.5
ETHANE	5.3	4.6	4.3
PROPANE	3.2	2.9	1.9
N-BUTANE	0.9	1.1	0.9
ISOBUTANE	0.5	0.5	0.3
N-PENTANE	0.2	0.3	0.3
ISOPENTANE	0.3	0.4	0.2
CYCLOPENTANE	0.1	0.1	0.2
HEXANES PLUS	0.2	0.3	0.3
NITROGEN	5.4	3.5	5.5
OXYGEN	0.5	TRACE	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	TRACE	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	5.1	0.2	0.3
HELIUM	0.12	0.17	0.20
HEATING VALUE*	1052	1131	1078
SPECIFIC GRAVITY	0.724	0.669	0.659

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 67 SAMPLE 16537	INDEX 68 SAMPLE 16420	INDEX 69 SAMPLE 16721
STATE	KANSAS	KENTUCKY	KENTUCKY
COUNTY	STEVENS	BELL	HOPKINS
FIELD	GENTZLER	HATFIELD GAP	WHITE PLAINS
WELL NAME	SCHMIDT "C" NO. 1	THACKER COAL NO. 1	HUNT-CRICK NO. 1
LOCATION	SEC. 30, T32S, R37W	CARTER COOR. 21, B, 67	CARTER COOR. 4, H, 26
OWNER	ANADARKO PRODUCTION CO.	WISER OIL CO.	HAR-KEN OIL CO.
COMPLETED	01/12/82	11/04/79	04/28/80
SAMPLED	06/04/82	01/29/82	12/01/82
FORMATION	PENN-MORROW	MISS-BIG LIME	MISS-TAR SPRINGS
GEOLOGIC PROVINCE CODE	360	160	315
DEPTH, FEET	5980	2930	1222
WELLHEAD PRESSURE,PSIG	1470	735	520
OPEN FLOW, MCFD	7522	1374	2480
COMPONENT, MOLE PCT			
METHANE	84.6	79.1	91.0
ETHANE	3.9	9.7	0.1
PROPANE	2.0	2.7	TRACE
N-BUTANE	0.6	0.6	0.0
ISOBUTANE	0.3	0.1	0.0
N-PENTANE	0.2	0.1	0.0
ISOPENTANE	0.2	0.1	0.0
CYCLOPENTANE	0.1	0.1	0.0
HEXANES PLUS	0.1	0.1	0.0
NITROGEN	7.3	7.1	8.2
OXYGEN	0.1	0.0	0.0
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.3	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.3	0.0	0.2
HELIUM	0.21	0.09	0.26
HEATING VALUE*	1035	1087	924
SPECIFIC GRAVITY	0.652	0.676	0.588

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 70 SAMPLE 16679	INDEX 71 SAMPLE 16540	INDEX 72 SAMPLE 16664
STATE	KENTUCKY	LOUISIANA	LOUISIANA
COUNTY	LESLIE	BOSSIER	CALCASIEU
FIELD	CUTSHIN	ANTRIM	LAKE CHARLES S
WELL NAME	WILLIAM CRESS NO. 7302	ANTRIM TRUST NO. 1	W.T.BURTON INDUSTRIES NO. 1
LOCATION	CARTER COOR. 2, G, 75	SEC. 1, T21N, R13W	SEC. 18, T11S, R8W
OWNER	KENTUCKY W. VIRGINIA GAS CO.	POGO PRODUCING CO.	MORAN EXPLORATION INC.
COMPLETED	01/09/80	04/02/81	07/27/82
SAMPLED	10/05/82	06/09/82	09/20/82
FORMATION	MISS-BIG LIME	JURA-COTTON VALLEY	OLIG-HACKBERRY
GEOLOGIC PROVINCE CODE	160	230	220
DEPTH, FEET	2801	9152	14591
WELLHEAD PRESSURE,PSIG	620	2940	10300
OPEN FLOW, MCFD	1100	545	24000
COMPONENT, MOLE PCT			
METHANE	77.9	77.4	47.4
ETHANE	9.0	11.1	20.4
PROPANE	3.3	5.1	17.3
N-BUTANE	0.8	1.4	3.7
ISOBUTANE	0.3	0.7	5.8
N-PENTANE	0.2	0.4	0.5
ISOPENTANE	0.2	0.3	1.7
CYCLOPENTANE	TRACE	0.1	0.1
HEXANES PLUS	0.1	0.2	0.5
NITROGEN	6.1	1.2	0.3
OXYGEN	0.9	0.0	TRACE
ARGON	0.1	0.0	0.0
HYDROGEN	0.9	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	2.0	2.2
HELIUM	0.14	0.01	TRACE
HEATING VALUE*	1098	1230	1738
SPECIFIC GRAVITY	0.686	0.737	1.051

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 73 SAMPLE 16503	INDEX 74 SAMPLE 16729	INDEX 75 SAMPLE 16462
STATE	LOUISIANA	LOUISIANA	LOUISIANA
PARISH	CALCASIEU	JACKSON	JEFFERSON DAVIS
FIELD	MANCHESTER S	VERNON	ROANOKE E
WELL NAME	FARMERS LAND & CANAL NO. 1	DAVIS BROS. LUMBER NO. A-1	H.A. WILKENSON NO. 1
LOCATION	SEC. 27, T10S, R7W	SEC. 21, T6N, R2E	SEC. 16, T9S, R3W
OWNER	DAMSON OIL CORP.	CRYSTAL OIL CO.	CONOCO, INC.
COMPLETED	03/05/80	05/--/82	09/23/81
SAMPLED	04/26/82	12/10/82	03/26/82
FORMATION	OLIG-HACKBERRY	JURA-COTTON VALLEY	OLIG-2ND HACKBERRY SD
GEOLOGIC PROVINCE CODE	220	230	220
DEPTH, FEET	13301	13684	12284
WELLHEAD PRESSURE,PSIG	4950	NOT GIVEN	7900
OPEN FLOW, MCFD	2700	3900	4080
COMPONENT, MOLE PCT			
METHANE	84.1	96.1	84.5
ETHANE	8.5	0.3	5.5
PROPANE	3.5	TRACE	3.9
N-BUTANE	0.8	0.0	1.5
ISOBUTANE	1.1	0.0	1.4
N-PENTANE	0.3	0.1	0.6
ISOPENTANE	0.2	0.0	0.7
CYCLOPENTANE	0.1	TRACE	0.2
HEXANES PLUS	0.3	0.1	0.8
NITROGEN	0.5	0.1	0.7
OXYGEN	0.0	0.0	0.1
ARGON	0.0	0.0	0.0
HYDROGEN	0.0	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.6	3.1	0.1
HELIUM	TRACE	TRACE	TRACE
HEATING VALUE*	1199	989	1257
SPECIFIC GRAVITY	0.687	0.590	0.717

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 76 SAMPLE 16608	INDEX 77 SAMPLE 16618	INDEX 78 SAMPLE 16706
STATE	LOUISIANA	LOUISIANA	LOUISIANA
PARISH	MADISON	NATCHITOCHES	POINTE COUPEE
FIELD	NEWLIGHT N	ROBELINE	NOT GIVEN
WELL NAME	CHICAGO MILL NO. B-1	B.E. CHRISTMAS NO. 1	RAVENSWOOD CO. INC. NO. 2
LOCATION	SEC. 30, T15N, R10E	SEC. 7, T8N, R9W	SEC. 42, T4S, R9E
OWNER	CRYSTAL OIL CO.	GETTY OIL CO.	AMOCO PRODUCTION CO.
COMPLETED	08/04/82	01/29/82	10/--/82
SAMPLED	08/04/82	08/02/82	11/--/82
FORMATION	JURA-COTTON VALLEY	CRET-HOSSTON	CRET-TUSCALOOSA
GEOLOGIC PROVINCE CODE	230	230	220
DEPTH, FEET	12900	8897	18880
WELLHEAD PRESSURE,PSIG	5900	4350	9672
OPEN FLOW, MCFD	185	6700	5200
COMPONENT, MOLE PCT			
METHANE	91.8	96.1	88.0
ETHANE	0.1	0.1	1.8
PROPANE	0.0	TRACE	0.2
N-BUTANE	0.1	0.0	0.1
ISOBUTANE	0.0	0.0	TRACE
N-PENTANE	0.1	0.0	TRACE
ISOPENTANE	0.0	0.0	TRACE
CYCLOPENTANE	0.2	0.0	TRACE
HEXANES PLUS	0.2	0.0	0.1
NITROGEN	0.7	0.9	3.6
OXYGEN	0.1	0.0	0.7
ARGON	TRACE	TRACE	0.1
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	6.5	2.8	5.2
HELIUM	0.02	0.03	TRACE
HEATING VALUE*	958	976	938
SPECIFIC GRAVITY	0.633	0.585	0.638

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 79 SAMPLE 16446	INDEX 80 SAMPLE 16577	INDEX 81 SAMPLE 16598
STATE	LOUISIANA	LOUISIANA	LOUISIANA
PARISH	POINTE COUPEE	TANGIPAHOA	VERMILION
FIELD	PROFIT ISLAND	MITCHELLS LAKE	RICEVILLE
WELL NAME	HURST-RICARD NO. 1	A.C. POWELL NO. 1	FIRST NATIONAL FARMS NO. 1
LOCATION	SEC. 49, T5S, R11E	SEC. 40, T7S, R8E	SEC. 24, T11S, R2W
OWNER	CHEVRON U.S.A., INC.	SUPERIOR OIL CO.	AMERICAN QUASAR PET. CO.
COMPLETED	12/02/80	03/29/82	05/04/80
SAMPLED	03/12/82	07/13/82	07/08/82
FORMATION	-19,100 SU "U"	NOT GIVEN	OLIG-ARA SUB
GEOLOGIC PROVINCE CODE	220	220	220
DEPTH, FEET	18640	7360	11700
WELLHEAD PRESSURE,PSIG	7000	2500	4120
OPEN FLOW, MCFD	10000	1300	5763
COMPONENT, MOLE PCT			
METHANE	86.4	82.7	95.2
ETHANE	4.9	1.3	2.4
PROPANE	1.5	1.5	0.7
N-BUTANE	0.4	0.6	0.2
ISOBUTANE	0.5	1.3	0.3
N-PENTANE	0.2	0.6	0.1
ISOPENTANE	0.1	0.3	0.1
CYCLOPENTANE	0.1	0.5	0.1
HEXANES PLUS	0.3	1.2	0.1
NITROGEN	0.4	7.9	0.3
OXYGEN	0.1	1.7	0.0
ARGON	0.0	0.1	TRACE
HYDROGEN	TRACE	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	5.1	0.2	0.6
HELIUM	TRACE	TRACE	TRACE
HEATING VALUE*	1064	1083	1060
SPECIFIC GRAVITY	0.674	0.705	0.597

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 82 SAMPLE 16456	INDEX 83 SAMPLE 16660	INDEX 84 SAMPLE 16724
STATE	MISSISSIPPI	MISSISSIPPI	MISSISSIPPI
COUNTY	JEFFERSON DAVIS	JEFFERSON DAVIS	LOWNDES
FIELD	OAKVALE	VINTAGE	MAPLE BRANCH
WELL NAME	AMOCO-SABINE NO. 1	CHAMPAGNE NO. 1	ALDRIDGE NO. 18-9
LOCATION	SEC. 26, T6N, R19W	SEC. 17, T6N, R18W	SEC. 18, T16S, R17W
OWNER	J-O-B OPERATING CO.	FOREST OIL CORP.	PRUET PRODUCTION CO.
COMPLETED	12/04/80	01/08/81	12/10/81
SAMPLED	03/17/82	09/15/82	12/--/82
FORMATION	CRET-SLIGO "C"	CRET-HARPER	MISS-CARTER
GEOLOGIC PROVINCE CODE	210	210	200
DEPTH, FEET	15750	16182	4470
WELLHEAD PRESSURE,PSIG	5380	4861	1842
OPEN FLOW, MCFD	3991	6000	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	94.7	93.5	90.2
ETHANE	0.2	0.3	4.1
PROPANE	0.1	0.1	0.6
N-BUTANE	0.1	0.1	0.1
ISOBUTANE	0.1	TRACE	0.4
N-PENTANE	0.1	TRACE	0.0
ISOPENTANE	0.0	TRACE	1.4
CYCLOPENTANE	TRACE	TRACE	0.8
HEXANES PLUS	0.1	0.1	0.4
NITROGEN	1.2	1.1	1.2
OXYGEN	TRACE	TRACE	TRACE
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.0	0.1	0.4
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	3.4	4.6	0.1
HELIUM	0.03	0.03	0.11
HEATING VALUE*	982	964	1131
SPECIFIC GRAVITY	0.602	0.609	0.642

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 85 SAMPLE 16417	INDEX 86 SAMPLE 16521	INDEX 87 SAMPLE 16520
STATE	MONTANA	MONTANA	MONTANA
COUNTY	LIBERTY	RICHLAND	ROOSEVELT
FIELD	TRAIL CREEK	CHARLIE CREEK N	NOT GIVEN
WELL NAME	STRATTON NO. 3-6	BN NO. 8-33	PANASUK NO. 1-5
LOCATION	SEC. 6, T36N, R4E	SEC. 33, T26N, R54E	SEC. 5, T28N, R59E
OWNER	MONTANA POWER CO.	FARMERS UNION CENT. EXCH INC	SOUTHLAND ROYALTY CO.
COMPLETED	10/09/81	11/25/81	11/--/81
SAMPLED	01/26/82	03/--/82	05/17/82
FORMATION	CRET-BOW ISLAND	ORDO-RED RIVER	ORDO-RED RIVER
GEOLOGIC PROVINCE CODE	500	395	395
DEPTH, FEET	1548	11496	12848
WELLHEAD PRESSURE,PSIG	174	4250	1125
OPEN FLOW, MCFD	800	3600	1038
COMPONENT, MOLE PCT			
METHANE	96.5	74.7	54.8
ETHANE	0.9	12.4	18.4
PROPANE	0.2	3.3	12.2
N-BUTANE	0.1	1.1	5.4
ISOBUTANE	TRACE	1.0	1.6
N-PENTANE	0.1	0.3	2.3
ISOPENTANE	0.0	0.3	1.5
CYCLOPENTANE	0.1	TRACE	0.3
HEXANES PLUS	0.1	0.2	1.1
NITROGEN	1.8	0.7	1.5
OXYGEN	TRACE	TRACE	0.1
ARGON	TRACE	0.0	0.0
HYDROGEN	TRACE	0.1	TRACE
HYDROGEN SULFIDE**	0.0	0.4	0.0
CARBON DIOXIDE	0.1	5.5	0.7
HELIUM	0.06	0.02	0.05
HEATING VALUE*	1015	1174	1668
SPECIFIC GRAVITY	0.577	0.756	0.993

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 88 SAMPLE 16651	INDEX 89 SAMPLE 16668	INDEX 90 SAMPLE 16480
STATE	MONTANA	NEW MEXICO	NEW MEXICO
COUNTY	TOOLE	CHAVES	CHAVES
FIELD	LEDGER	LIGHTCAP	PECOS SLOPE
WELL NAME	CAMPBELL NO. 1-18	SANDERS NO. 1	STANCEL FED. NO. 1
LOCATION	SEC. 18, T30N, R1W	SEC. 8, T8S, R30E	SEC. 23, T5S, R24E
OWNER	BALCRON OIL CO.	AIKMAN PETROLEUM, INC.	MESA PETROLEUM CO.
COMPLETED	04/29/82	10/--/81	--/--/80
SAMPLED	09/16/82	09/24/82	03/01/82
FORMATION	CRET-BOW ISLAND	ORDO-MONTOYA	PERM-ABO
GEOLOGIC PROVINCE CODE	500	430	430
DEPTH, FEET	1074	7900	3786
WELLHEAD PRESSURE,PSIG	175	1385	1200
OPEN FLOW, MCFD	1122	2001	654
COMPONENT, MOLE PCT			
METHANE	88.2	73.0	83.9
ETHANE	0.3	8.5	4.7
PROPANE	TRACE	5.2	2.0
N-BUTANE	0.0	1.5	0.7
ISOBUTANE	0.0	1.0	0.4
N-PENTANE	0.0	0.3	0.3
ISOPENTANE	0.0	0.5	0.1
CYCLOPENTANE	0.0	0.1	0.1
HEXANES PLUS	0.0	0.2	0.3
NITROGEN	10.9	4.3	6.8
OXYGEN	0.0	0.1	0.1
ARGON	0.1	TRACE	TRACE
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	TRACE	5.1	0.0
HELIUM	0.42	0.13	0.49
HEATING VALUE*	899	1159	1060
SPECIFIC GRAVITY	0.600	0.776	0.657

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 91 SAMPLE 16410	INDEX 92 SAMPLE 16687	INDEX 93 SAMPLE 16447
STATE	NEW MEXICO	NEW MEXICO	NEW MEXICO
COUNTY	CHAVES	CHAVES	COLFAX
FIELD	WILDCAT	WILDCAT	NOT GIVEN
WELL NAME	NINE MILE OB	CAMEL STATE NO. 1	ROBERTS NO. 1
LOCATION	SEC. 32, T18S, R25E	SEC. 7, T9S, R27E	SEC. 7, T28N, R27E
OWNER	YATES PETROLEUM CORP.	PLAINS RADIO BROADCASTING CO	W.C. ROBERTS
COMPLETED	02/20/81	06/24/81	NOT GIVEN
SAMPLED	01/19/82	10/--/82	03/--/82
FORMATION	PERM-PREMIER	PENN-	CRET-DAKOTA
GEOLOGIC PROVINCE CODE	430	430	455
DEPTH, FEET	1800	6154	420
WELLHEAD PRESSURE,PSIG	1000	1947	NOT GIVEN
OPEN FLOW, MCFD	250	4186	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	65.6	88.6	7.7
ETHANE	5.6	4.0	0.0
PROPANE	2.5	1.3	TRACE
N-BUTANE	0.7	0.5	0.0
ISOBUTANE	0.4	0.3	0.0
N-PENTANE	0.2	0.1	0.0
ISOPENTANE	0.1	0.3	0.0
CYCLOPENTANE	0.1	0.1	0.0
HEXANES PLUS	0.2	0.2	0.0
NITROGEN	24.2	4.1	3.0
OXYGEN	0.2	0.2	0.0
ARGON	TRACE	TRACE	0.1
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.0	0.2	89.1
HELIUM	0.05	0.15	0.01
HEATING VALUE*	894	1061	78
SPECIFIC GRAVITY	0.736	0.634	1.435

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 94 SAMPLE 16411	INDEX 95 SAMPLE 16470	INDEX 96 SAMPLE 16407
STATE	NEW MEXICO	NEW MEXICO	NEW MEXICO
COUNTY	EDDY	EDDY	LEA
FIELD	EAGLE CREEK	WILDCAT	TALCO
WELL NAME	PATTERSON EL NO. 1	MAW STATE NO. 1	TALCO UNIT NO. 1
LOCATION	SEC. 31, T17S, R26E	SEC. 14, T24S, R27E	SEC. 11, T26S, R35E
OWNER	YATES PETROLEUM CORP.	POGO PRODUCING CO.	ATAPCO
COMPLETED	01/11/77	09/23/81	07/--/81
SAMPLED	01/20/82	03/25/82	12/18/81
FORMATION	PENN-STRAWN	PENN-ATOKA	PENN-STRAWN
GEOLOGIC PROVINCE CODE	430	430	430
DEPTH, FEET	7900	11220	14900
WELLHEAD PRESSURE,PSIG	1289	6000	6500
OPEN FLOW, MCFD	400	2319	7107
COMPONENT, MOLE PCT			
METHANE	90.4	95.5	93.1
ETHANE	4.8	2.4	1.8
PROPANE	1.6	0.3	0.3
N-BUTANE	0.4	0.1	0.1
ISOBUTANE	0.3	0.1	TRACE
N-PENTANE	0.1	TRACE	0.1
ISOPENTANE	0.1	TRACE	TRACE
CYCLOPENTANE	0.1	TRACE	0.2
HEXANES PLUS	0.2	0.1	0.3
NITROGEN	1.5	1.0	2.7
OXYGEN	0.3	0.1	1.0
ARGON	TRACE	TRACE	TRACE
HYDROGEN	TRACE	0.0	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.2	0.3	0.3
HELIUM	0.03	0.01	0.02
HEATING VALUE*	1089	1030	1014
SPECIFIC GRAVITY	0.625	0.582	0.600

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 97 SAMPLE 16617	INDEX 98 SAMPLE 16667	INDEX 99 SAMPLE 16452
STATE	NEW MEXICO	NEW MEXICO	NEW MEXICO
COUNTY	RIO ARRIBA	ROOSEVELT	SAN JUAN
FIELD	OJITO GALLUP	PETERSON	AZTEC FRUITLAND
WELL NAME	FLORANCE NO. 11	E.R.G. CRUME NO. 1	HANLEY NO. 3
LOCATION	SEC. 5, T25N, R3W	NOT GIVEN	SEC. 18, T29N, R10W
OWNER	PETRO-LEWIS CORP.	ENERGY RESERVES GROUP, INC.	PETROLEUM CORP. OF TEXAS
COMPLETED	01/--/82	08/--/81	10/08/81
SAMPLED	08/10/82	09/22/82	03/16/82
FORMATION	CRET-DAKOTA	PENN-CISCO	CRET-FRUITLAND
GEOLOGIC PROVINCE CODE	580	430	580
DEPTH, FEET	8139	7542	1654
WELLHEAD PRESSURE,PSIG	650	1300	500
OPEN FLOW, MCFD	500	1600	4166
COMPONENT, MOLE PCT			
METHANE	73.5	68.2	85.2
ETHANE	14.9	9.8	7.7
PROPANE	6.4	6.7	3.4
N-BUTANE	1.5	2.4	0.9
ISOBUTANE	0.9	1.1	0.7
N-PENTANE	0.4	0.8	0.2
ISOPENTANE	0.4	0.4	0.4
CYCLOPENTANE	0.1	0.3	0.1
HEXANES PLUS	0.3	0.8	0.3
NITROGEN	0.6	8.7	1.1
OXYGEN	TRACE	TRACE	0.0
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.0	0.3	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.7	0.1	0.0
HELIUM	0.05	0.32	0.01
HEATING VALUE*	1312	1263	1188
SPECIFIC GRAVITY	0.761	0.805	0.676

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 100 SAMPLE 16468	INDEX 101 SAMPLE 16434	INDEX 102 SAMPLE 16712
STATE	NEW YORK	NORTH DAKOTA	NORTH DAKOTA
COUNTY	CHAUTAUQUA	BILLINGS	DUNN
FIELD	NOT GIVEN	TREE TOP	JIM CREEK
WELL NAME	N.Y. REF. AREA 1 NO. 8	FED. NO. 1-28	SKACHENKO NO. A-1
LOCATION	HAMLET QUAD, CHERRY CRK TWP.	SEC. 28, T142N, R100W	SEC. 30, T146N,R95W
OWNER	BEREA OIL & GAS CORP.	PATRICK PETROLEUM CORP.	AMOCO PRODUCTION CO.
COMPLETED	10/20/81	01/15/81	10/27/81
SAMPLED	03/26/82	02/23/82	11/19/82
FORMATION	SILU-MEDINA	MISS-MISSION CANYON	DEVO-DUPEROW
GEOLOGIC PROVINCE CODE	160	395	395
DEPTH, FEET	3970	9600	11302
WELLHEAD PRESSURE,PSIG	1150	1300	350
OPEN FLOW, MCFD	1500	1500	1357
COMPONENT, MOLE PCT			
METHANE	92.3	46.1	55.7
ETHANE	2.3	21.4	18.0
PROPANE	0.2	13.5	13.0
N-BUTANE	0.1	5.4	4.6
ISOBUTANE	0.0	3.2	2.7
N-PENTANE	TRACE	1.5	1.2
ISOPENTANE	TRACE	1.9	2.2
CYCLOPENTANE	TRACE	0.4	0.4
HEXANES PLUS	0.1	1.0	0.9
NITROGEN	4.5	1.0	0.8
OXYGEN	0.2	0.0	TRACE
ARGON	TRACE	0.0	0.0
HYDROGEN	0.1	0.0	0.1
HYDROGEN SULFIDE**	0.0	2.3	0.0
CARBON DIOXIDE	TRACE	2.3	0.5
HELIUM	0.12	TRACE	0.01
HEATING VALUE*	990	1717	1677
SPECIFIC GRAVITY	0.590	1.065	0.988

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 103 SAMPLE 16554	INDEX 104 SAMPLE 16713	INDEX 105 SAMPLE 16511
STATE	NORTH DAKOTA	NORTH DAKOTA	OHIO
COUNTY	STARK	WILLIAMS	CRAWFORD
FIELD	RICHARDTON	WILLOW CREEK	NOT GIVEN
WELL NAME	OGRE NO. 1-24-1C	SLETTE-STANGELAND NCT 1 NO.1	WATER WELL
LOCATION	NOT GIVEN	SEC. 13, T153N,R100W	NEAR TIRO OHIO
OWNER	GULF OIL EXPL. & PROD. CO.	TEXACO U.S.A.	CRAIG M. KEHRES
COMPLETED	01/--/82	01/28/82	NOT GIVEN
SAMPLED	06/19/82	11/23/82	05/01/82
FORMATION	ORDO-WINNIPEG	ORDO-RED RIVER	NOT GIVEN
GEOLOGIC PROVINCE CODE	395	395	160
DEPTH, FEET	11700	14037	110
WELLHEAD PRESSURE,PSIG	4100	3600	NOT GIVEN
OPEN FLOW, MCFD	4000	2800	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	90.7	72.3	86.0
ETHANE	3.7	12.9	0.0
PROPANE	1.0	6.4	0.0
N-BUTANE	0.4	2.7	0.0
ISOBUTANE	0.2	1.1	0.0
N-PENTANE	0.2	1.0	0.0
ISOPENTANE	0.1	1.4	0.0
CYCLOPENTANE	TRACE	0.1	0.0
HEXANES PLUS	0.2	0.5	0.0
NITROGEN	2.1	0.7	13.4
OXYGEN	TRACE	TRACE	0.1
ARGON	TRACE	TRACE	0.3
HYDROGEN	0.1	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.1	0.0
CARBON DIOXIDE	1.1	0.6	0.3
HELIUM	0.09	0.03	0.01
HEATING VALUE*	1055	1391	871
SPECIFIC GRAVITY	0.620	0.809	0.616

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 106 SAMPLE 16507	INDEX 107 SAMPLE 16736	INDEX 108 SAMPLE 16475
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	ALFALFA	ATOKA	BEAVER
FIELD	EUREKA SE	RIDGE S	BALKO S
WELL NAME	FEELY NO. 1-23	TAYLOR NO. 1	NAYLOR "A" NO. 1-32
LOCATION	SEC. 23, T28N, R9W	SEC. 15, T3S, R11E	SEC. 32, T1N, R22ECM
OWNER	KWB OIL PROP. MGNT., INC.	SOHIO PETROLEUM CO.	NATURAL GAS ANADARKO, INC.
COMPLETED	--/--/81	11/13/81	09/15/81
SAMPLED	04/28/82	12/14/82	04/01/82
FORMATION	PENN-CHEROKEE	PENN-WAPANUKA	PENN-MORROW
GEOLOGIC PROVINCE CODE	360	400	360
DEPTH, FEET	5175	9824	8056
WELLHEAD PRESSURE,PSIG	1950	2888	1774
OPEN FLOW, MCFD	1400	1400	2704
COMPONENT, MOLE PCT			
METHANE	84.6	95.1	86.7
ETHANE	5.6	2.0	5.7
PROPANE	2.3	0.9	2.9
N-BUTANE	0.8	0.2	0.9
ISOBUTANE	0.3	0.1	0.4
N-PENTANE	0.4	TRACE	0.2
ISOPENTANE	0.1	0.1	0.3
CYCLOPENTANE	0.2	0.3	0.1
HEXANES PLUS	0.4	0.3	0.3
NITROGEN	5.0	0.6	1.8
OXYGEN	0.1	0.1	0.1
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.0	0.2	TRACE
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	TRACE	TRACE	0.4
HELIUM	0.09	0.03	0.15
HEATING VALUE*	1104	1064	1140
SPECIFIC GRAVITY	0.665	0.594	0.661

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H_2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 109 SAMPLE 16700	INDEX 110 SAMPLE 16619	INDEX 111 SAMPLE 16620
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	BEAVER	BEAVER	BEAVER
FIELD	FLORIS	GRAND VALLEY N	GRAND VALLEY N
WELL NAME	PLETT "B" NO. 1	RAGSDALE TRUST NO. 1	RAGSDALE TRUST NO. 1
LOCATION	SEC. 23, T5N, R21ECM	SEC. 9, T2N, R20ECM	SEC. 9, T2N, R20ECM
OWNER	ANADARKO PRODUCTION CO.	KELLOIL, INC.	KELLOIL, INC.
COMPLETED	04/09/81	11/07/81	11/07/81
SAMPLED	11/01/82	08/17/82	08/17/82
FORMATION	MISS-CHESTER	PENN-MORROW L	PENN-U MORROW SD
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	6502	7060	6638
WELLHEAD PRESSURE,PSIG	508	1400	450
OPEN FLOW, MCFD	221	2800	800
COMPONENT, MOLE PCT			
METHANE	88.9	75.7	81.0
ETHANE	3.8	7.5	5.9
PROPANE	2.0	7.8	5.0
N-BUTANE	0.6	2.7	1.7
ISOBUTANE	0.4	1.1	0.8
N-PENTANE	0.2	0.4	0.4
ISOPENTANE	0.5	1.0	0.7
CYCLOPENTANE	0.1	0.2	0.3
HEXANES PLUS	0.2	0.4	0.5
NITROGEN	2.5	2.5	2.9
OXYGEN	0.1	TRACE	TRACE
ARGON	TRACE	0.0	0.0
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.4	0.4	0.4
HELIUM	0.11	0.10	0.15
HEATING VALUE*	1098	1320	1225
SPECIFIC GRAVITY	0.642	0.781	0.725

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 112 SAMPLE 16699	INDEX 113 SAMPLE 16476	INDEX 114 SAMPLE 16527
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	BEAVER	BEAVER	BECKHAM
FIELD	LIGHT	UNION STAR N	NEW LIBERTY S
WELL NAME	WALLACE "B" NO. 1	VENABLE NO. 1-28	SWEET NO. 1-21
LOCATION	SEC. 22, T6N, R21ECM	SEC. 28, T3N, R23ECM	SEC. 21, T10N, R24W
OWNER	J.M. HUBER CORP.	NATURAL GAS ANADARKO, INC.	TENNECO OIL EXPL. & PROD. CO
COMPLETED	10/28/81	10/08/80	12/12/81
SAMPLED	11/01/82	04/01/82	05/26/82
FORMATION	PENN-KANSAS CITY	MISS-ST. LOUIS	PENN-MORROW
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	4600	7920	18364
WELLHEAD PRESSURE,PSIG	1275	2436	5400
OPEN FLOW, MCFD	19100	6971	3500
COMPONENT, MOLE PCT			
METHANE	77.7	93.2	97.9
ETHANE	6.7	2.1	0.6
PROPANE	3.2	0.7	0.1
N-BUTANE	1.0	0.3	0.0
ISOBUTANE	0.4	0.2	0.0
N-PENTANE	0.3	0.1	0.0
ISOPENTANE	0.4	0.1	0.0
CYCLOPENTANE	0.1	0.1	0.0
HEXANES PLUS	0.3	0.2	0.0
NITROGEN	9.5	2.6	0.3
OXYGEN	0.0	0.1	0.0
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	TRACE	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	TRACE	TRACE	1.0
HELIUM	0.30	0.17	0.01
HEATING VALUE*	1087	1039	1005
SPECIFIC GRAVITY	0.701	0.600	0.569

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 115 SAMPLE 16416	INDEX 116 SAMPLE 16686	INDEX 117 SAMPLE 16616
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	BLAINE	BLAINE	CADDO
FIELD	HYDRO NE	HYDRO NE	COTTONWOOD SW
WELL NAME	FRIEDA NO. 1-25	LUBINUS NO. 1-15	MCCOMAS NO.1-21
LOCATION	SEC. 25, T13N, R13W	SEC. 15, T13N, R13W	SEC. 21, T7N, R9W
OWNER	AN-SON CORP.	AN-SON CORP.	SHELL OIL CO.
COMPLETED	11/16/81	05/26/82	04/--/82
SAMPLED	01/24/82	09/24/82	08/10/82
FORMATION	PENN-SPRINGER	PENN-SPRINGER	PENN-SPRINGER
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	12578	12516	17534
WELLHEAD PRESSURE,PSIG	8700	7300	6451
OPEN FLOW, MCFD	4700	3350	6500
COMPONENT, MOLE PCT			
METHANE	94.8	93.1	96.6
ETHANE	2.7	3.6	1.4
PROPANE	0.6	1.0	0.1
N-BUTANE	0.1	0.2	TRACE
ISOBUTANE	0.1	0.2	TRACE
N-PENTANE	0.1	0.1	0.0
ISOPENTANE	TRACE	0.1	0.1
CYCLOPENTANE	0.1	TRACE	0.0
HEXANES PLUS	0.2	0.1	0.0
NITROGEN	0.3	0.3	0.2
OXYGEN	TRACE	TRACE	TRACE
ARGON	0.0	TRACE	TRACE
HYDROGEN	0.0	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.9	1.0	1.4
HELIUM	0.02	0.02	0.01
HEATING VALUE*	1049	1061	1011
SPECIFIC GRAVITY	0.595	0.604	0.578

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 118 SAMPLE 16655	INDEX 119 SAMPLE 16528	INDEX 120 SAMPLE 16502
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	CADDO	CADDO	CUSTER
FIELD	EAKLEY E	LAVERTY	CARPENTER NE
WELL NAME	BEAR NO. 19-1	C.E. MOODY NO. 1-10	K.C. CATTLE NO. 1-33
LOCATION	SEC. 19, T10N, R12W	SEC. 10, T6N, R9W	SEC. 33, T13N, R20W
OWNER	DRILLERS EXPLORATION, INC.	GULF OIL EXPL. & PROD. CO.	GHK CORP.
COMPLETED	09/17/82	10/18/81	08/26/81
SAMPLED	09/17/82	05/25/82	04/27/82
FORMATION	PENN-SPRINGER	PENN-CUNNINGHAM L	PENN-RED FORK
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	16000	16580	13145
WELLHEAD PRESSURE,PSIG	12500	7980	9600
OPEN FLOW, MCFD	25000	1970	2309
COMPONENT, MOLE PCT			
METHANE	97.0	95.5	87.6
ETHANE	0.7	2.5	7.0
PROPANE	0.1	0.3	2.3
N-BUTANE	0.0	0.1	0.4
ISOBUTANE	0.0	0.0	0.3
N-PENTANE	0.0	TRACE	0.2
ISOPENTANE	0.0	TRACE	0.2
CYCLOPENTANE	0.0	TRACE	0.1
HEXANES PLUS	0.0	0.1	0.2
NITROGEN	0.2	0.2	0.8
OXYGEN	TRACE	TRACE	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	TRACE	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	1.8	1.0	0.8
HELIUM	0.02	0.02	0.02
HEATING VALUE*	998	1029	1127
SPECIFIC GRAVITY	0.576	0.583	0.649

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 121 SAMPLE 16518	INDEX 122 SAMPLE 16582	INDEX 123 SAMPLE 16697
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	CUSTER	DEWEY	DEWEY
FIELD	HYDRO	OAKWOOD N	SEILING W
WELL NAME	STEINER NO. 1	DOWLING NO. 2-28	MCDANIEL NO. 4
LOCATION	SEC. 22, T13N, R14W	SEC. 28, T18N, R14W	SEC. 4, T19N, R17W
OWNER	KAISER-FRANCIS OIL CO.	SOUTHLAND ROYALTY CO.	LADD PETROLEUM CORP.
COMPLETED	04/06/81	07/20/82	10/28/82
SAMPLED	05/14/82	07/20/82	10/27/82
FORMATION	NOT GIVEN	PENN-MORROW	PENN-MORROW
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	NOT GIVEN	9352	8950
WELLHEAD PRESSURE,PSIG	NOT GIVEN	250	2850
OPEN FLOW, MCFD	NOT GIVEN	1100	1000
COMPONENT, MOLE PCT			
METHANE	96.5	77.1	95.0
ETHANE	1.7	10.1	2.3
PROPANE	0.3	6.4	0.7
N-BUTANE	0.0	1.8	0.2
ISOBUTANE	0.0	1.1	0.1
N-PENTANE	0.0	0.4	0.1
ISOPENTANE	0.0	0.7	0.1
CYCLOPENTANE	0.0	0.3	0.1
HEXANES PLUS	0.0	0.5	0.1
NITROGEN	0.3	1.0	0.3
OXYGEN	0.0	0.0	TRACE
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.0	0.0	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	1.2	0.6	1.1
HELIUM	0.03	0.03	0.03
HEATING VALUE*	1016	1310	1050
SPECIFIC GRAVITY	0.579	0.767	0.598

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 124 SAMPLE 16733	INDEX 125 SAMPLE 16694	INDEX 126 SAMPLE 16643
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	GARVIN	GRADY	GRADY
FIELD	WILDCAT	CHICKASHA NW	MINCO SW
WELL NAME	LAWSON NO. 1-2	MCCARTHY NO. 1	RALPH JACOBS NO. 2-30
LOCATION	SEC. 2, T3N, R2E	SEC. 18, T7N, R8W	SEC. 30, T9N, R7W
OWNER	READING & BATES PETROLEUM CO	COTTON PETROLEUM CORP.	GULF OIL EXPL. & PROD. CO.
COMPLETED	10/08/81	07/09/82	11/20/81
SAMPLED	12/11/82	10/18/82	09/14/82
FORMATION	PENN-TONKAWA	-BOATWRIGHT	PENN-TONKAWA
GEOLOGIC PROVINCE CODE	350	360	360
DEPTH, FEET	2042	16079	7781
WELLHEAD PRESSURE,PSIG	750	10000	2100
OPEN FLOW, MCFD	2414	6000	1200
COMPONENT, MOLE PCT			
METHANE	82.9	94.2	87.9
ETHANE	0.2	3.4	3.4
PROPANE	TRACE	0.6	1.9
N-BUTANE	0.1	0.2	0.6
ISOBUTANE	0.0	0.1	0.2
N-PENTANE	TRACE	0.1	0.1
ISOPENTANE	0.1	0.1	0.2
CYCLOPENTANE	0.1	TRACE	0.1
HEXANES PLUS	0.1	0.1	0.2
NITROGEN	15.8	0.3	4.7
OXYGEN	0.2	TRACE	0.1
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.2	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.2	0.9	0.3
HELIUM	0.10	0.02	0.13
HEATING VALUE*	861	1055	1055
SPECIFIC GRAVITY	0.630	0.598	0.636

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 127 SAMPLE 16472	INDEX 128 SAMPLE 16615	INDEX 129 SAMPLE 16449
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	GRANT	GRANT	HUGHES
FIELD	NASH	WAKITA NE	GREASY CREEK
WELL NAME	SKAGGS NO. 1-15	GILE NO. 1-16	HUGHES NO. 1-A
LOCATION	SEC. 15, T25N, R8W	SEC. 16, T29N, R6W	SEC. 28, T8N, R10E
OWNER	HG&G, INC.	MID-AMERICA PETROLEUM, INC.	LEMA PETROLEUM, INC.
COMPLETED	11/25/81	04/29/82	03/15/82
SAMPLED	03/31/82	08/09/82	03/13/82
FORMATION	DEVO-HUNTON	MISS-LIME	PENN-HARTSHORNE
GEOLOGIC PROVINCE CODE	360	360	355
DEPTH, FEET	6248	5006	2500
WELLHEAD PRESSURE,PSIG	2180	1650	1000
OPEN FLOW, MCFD	1400	4900	3000
COMPONENT, MOLE PCT			
METHANE	88.6	68.0	93.6
ETHANE	6.0	7.2	2.5
PROPANE	2.0	3.7	1.0
N-BUTANE	0.7	1.7	0.2
ISOBUTANE	0.3	0.4	0.3
N-PENTANE	0.3	0.4	0.1
ISOPENTANE	0.1	0.5	0.1
CYCLOPENTANE	0.1	0.2	0.1
HEXANES PLUS	0.3	0.3	0.2
NITROGEN	1.6	17.0	1.7
OXYGEN	TRACE	0.1	0.0
ARGON	0.0	TRACE	0.0
HYDROGEN	0.0	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.0	0.2	TRACE
HELIUM	0.06	0.25	0.05
HEATING VALUE*	1127	1046	1059
SPECIFIC GRAVITY	0.643	0.759	0.601

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 130 SAMPLE 16628	INDEX 131 SAMPLE 16638	INDEX 132 SAMPLE 16732
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	HUGHES	HUGHES	KAY
FIELD	WILDCAT	YEAGER	BRAMAN
WELL NAME	JOHNSON NO. 1	WILLIAMS NO.1-24	BULL NO. 1-16
LOCATION	SEC. 2, T8N, R13W	SEC. 24, T8N, R9E	SEC. 16, T28N, R1W
OWNER	JAY PETROLEUM INC.	LUBELL OIL CO.	WESTERN PACIFIC PET., INC.
COMPLETED	03/28/82	03/--/82	12/22/81
SAMPLED	08/30/82	09/07/82	12/13/82
FORMATION	PENN-U GILCREASE SD	PENN-GILCREASE	PENN-STALNAKER
GEOLOGIC PROVINCE CODE	355	355	355
DEPTH, FEET	3002	3200	2410
WELLHEAD PRESSURE,PSIG	170	940	850
OPEN FLOW, MCFD	1000	3000	760
COMPONENT, MOLE PCT			
METHANE	83.8	86.8	59.7
ETHANE	8.0	4.0	5.1
PROPANE	2.8	2.1	2.8
N-BUTANE	0.7	0.6	0.9
ISOBUTANE	0.3	0.4	0.3
N-PENTANE	0.2	0.2	0.2
ISOPENTANE	0.2	0.1	0.3
CYCLOPENTANE	0.1	0.1	0.1
HEXANES PLUS	0.1	0.3	0.3
NITROGEN	3.1	5.0	29.3
OXYGEN	0.5	TRACE	TRACE
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.2	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	TRACE	0.2	0.2
HELIUM	0.09	0.11	0.51
HEATING VALUE*	1125	1071	850
SPECIFIC GRAVITY	0.664	0.647	0.764

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 133 SAMPLE 16474	INDEX 134 SAMPLE 16607	INDEX 135 SAMPLE 16563
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	LATIMER	LEFLORE	LINCOLN
FIELD	KINTA	BOKOSHE S	NOT GIVEN
WELL NAME	WHITE "H" NO. 2	DEW NO. 1	ELMO NO. 1
LOCATION	SEC. 12, T6N, R17E	SEC. 19, T8N, R24E	SEC. 8, T16N, R2E
OWNER	GETTY OIL CO.	UNIT DRILLING & EXPL. CO.	PHILLIPS OIL OPERATING CO.
COMPLETED	10/31/81	02/--/82	06/10/82
SAMPLED	04/01/82	08/06/82	06/10/82
FORMATION	ORDO-RED OAK	-BRAZIL	PENN-RED FORK
GEOLOGIC PROVINCE CODE	345	345	355
DEPTH, FEET	6970	7202	NOT GIVEN
WELLHEAD PRESSURE,PSIG	600	2462	1560
OPEN FLOW, MCFD	1900	2896	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	96.1	96.1	81.3
ETHANE	1.6	1.4	8.7
PROPANE	0.3	0.2	3.8
N-BUTANE	0.0	0.0	1.2
ISOBUTANE	0.0	0.0	0.4
N-PENTANE	0.0	0.0	0.4
ISOPENTANE	0.0	0.0	0.2
CYCLOPENTANE	0.0	0.0	0.1
HEXANES PLUS	0.0	0.0	0.2
NITROGEN	0.6	0.2	3.4
OXYGEN	0.2	0.0	TRACE
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.9	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.4	1.9	0.1
HELIUM	0.03	0.05	0.08
HEATING VALUE*	1013	1004	1172
SPECIFIC GRAVITY	0.569	0.582	0.692

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 136 SAMPLE 16429	INDEX 137 SAMPLE 16433	INDEX 138 SAMPLE 16698
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	LINCOLN	LOGAN	MAJOR
FIELD	WELLSTON S	GUTHRIE LAKE	WAUKOMIS
WELL NAME	DAVIS UNIT NO. 1-27	ELLIS NO. 2	LESLIE E. SWART NO. 1
LOCATION	SEC. 27, T14N, R2E	SEC. 10, T15N, R2W	SEC. 15, T20N, R9W
OWNER	PSEC, INC.	ARTHUR FINSTON	DIAMOND SHAMROCK CORP.
COMPLETED	01/--/82	08/24/81	05/18/82
SAMPLED	02/18/82	02/24/82	10/26/82
FORMATION	PENN-CLEVELAND	ORDO-VIOLA	DEVO-HUNTON
GEOLOGIC PROVINCE CODE	355	355	360
DEPTH, FEET	4207	5858	8256
WELLHEAD PRESSURE,PSIG	1620	1200	1550
OPEN FLOW, MCFD	7000	750	2000
COMPONENT, MOLE PCT			
METHANE	77.4	81.8	83.7
ETHANE	8.2	9.2	9.6
PROPANE	4.1	3.9	3.2
N-BUTANE	1.2	1.3	0.9
ISOBUTANE	0.3	0.4	0.4
N-PENTANE	0.3	0.4	0.3
ISOPENTANE	0.2	0.2	0.3
CYCLOPENTANE	0.1	0.1	0.1
HEXANES PLUS	0.2	0.3	0.2
NITROGEN	7.8	2.0	1.1
OXYGEN	0.0	TRACE	TRACE
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.1	TRACE	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.0	0.2	0.2
HELIUM	0.09	0.04	0.03
HEATING VALUE*	1124	1197	1187
SPECIFIC GRAVITY	0.707	0.695	0.679

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 139 SAMPLE 16709	INDEX 140 SAMPLE 16691	INDEX 141 SAMPLE 16692
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	MCCLAIN	OKFUSKEE	OKFUSKEE
FIELD	FREENY	GREGORY	GREGORY
WELL NAME	JOHNSON NO. 1	STANFORD NO. 1-26	STANFORD NO. 1-26
LOCATION	SEC. 14, T8N, R4W	SEC. 26, T10N, R11E	SEC. 26, T10N, R11E
OWNER	BLUE QUAIL ENERGY, INC.	STAR RESOURCES INC.	STAR RESOURCES INC.
COMPLETED	11/--/81	10/19/82	10/19/82
SAMPLED	11/17/82	10/19/82	10/19/82
FORMATION	ORDO-VIOLA	PENN-GILCREASE	PENN-STUART
GEOLOGIC PROVINCE CODE	355	355	355
DEPTH, FEET	9800	2513	931
WELLHEAD PRESSURE,PSIG	1250	450	250
OPEN FLOW, MCFD	3250	75	50
COMPONENT, MOLE PCT			
METHANE	87.7	81.1	81.1
ETHANE	6.5	8.8	3.7
PROPANE	2.3	4.0	1.6
N-BUTANE	0.7	1.1	0.4
ISOBUTANE	0.3	0.5	0.3
N-PENTANE	0.2	0.2	0.1
ISOPENTANE	0.3	0.4	0.1
CYCLOPENTANE	0.1	0.2	TRACE
HEXANES PLUS	0.3	0.3	0.1
NITROGEN	0.7	3.0	10.6
OXYGEN	TRACE	0.1	1.6
ARGON	TRACE	0.0	0.1
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.6	0.2	0.1
HELIUM	0.03	0.05	0.13
HEATING VALUE*	1139	1186	967
SPECIFIC GRAVITY	0.651	0.699	0.659

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 142 SAMPLE 16555	INDEX 143 SAMPLE 16648	INDEX 144 SAMPLE 16734
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	OKFUSKEE	OKLAHOMA	OKLAHOMA
FIELD	SCOTT GAS AREA	HARRAH S	WITCHER-MUNGER
WELL NAME	SCOTT NO. 1	KUSEK NO. 3	HOBBS NO. 1
LOCATION	SEC. 28, T10N, R10E	SEC. 2, T11N, T1E	SEC. 26, T12N, R2W
OWNER	CHEROKEE RESOURCES, INC.	AMSTAR OIL, INC.	PHILIP BOYLE, INC.
COMPLETED	06/15/82	07/26/81	08/--/82
SAMPLED	06/24/82	09/--/82	12/13/82
FORMATION	PENN-GILCREASE	PENN-SKINNER U	DEVO-MISENER SD
GEOLOGIC PROVINCE CODE	355	355	355
DEPTH, FEET	2966	5280	6372
WELLHEAD PRESSURE,PSIG	1350	NOT GIVEN	850
OPEN FLOW, MCFD	3000	3788	6316
COMPONENT, MOLE PCT			
METHANE	80.9	70.7	74.9
ETHANE	6.2	6.9	10.8
PROPANE	3.8	4.4	6.5
N-BUTANE	0.9	1.3	1.9
ISOBUTANE	0.5	0.6	0.6
N-PENTANE	0.2	0.3	0.5
ISOPENTANE	0.3	0.4	0.6
CYCLOPENTANE	0.1	0.1	0.2
HEXANES PLUS	0.2	0.2	0.4
NITROGEN	6.5	14.5	3.4
OXYGEN	0.1	0.0	TRACE
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.1	0.1	0.2
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.2	0.1	TRACE
HELIUM	0.12	0.13	0.03
HEATING VALUE*	1112	1062	1281
SPECIFIC GRAVITY	0.690	0.740	0.759

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H_2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 145 SAMPLE 16443	INDEX 146 SAMPLE 16458	INDEX 147 SAMPLE 16538
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	OKMULGEE	PAYNE	PITTSBURG
FIELD	OKMULGEE E	MEHAN	NOT GIVEN
WELL NAME	DETHEROW NO. 1-10	MCKENZIE NO. 8	HODGENS NO. 1
LOCATION	SEC. 10, T13N, R13E	SEC. 13, T18N, R3E	SEC. 16, T3N, R14E
OWNER	GMG OIL & GAS CORP.	EARTH ENERGY RESOURCES, INC.	COTTON PETROLEUM CORP.
COMPLETED	10/--/81	11/20/80	07/--/81
SAMPLED	02/23/82	03/--/82	06/01/82
FORMATION	PENN-DUTCHER	PENN-PERU	PENN-WAPANUKA
GEOLOGIC PROVINCE CODE	355	355	345
DEPTH, FEET	1918	3212	10114
WELLHEAD PRESSURE,PSIG	800	1075	2050
OPEN FLOW, MCFD	3200	3000	2072
COMPONENT, MOLE PCT			
METHANE	84.0	62.8	95.0
ETHANE	6.7	5.7	0.6
PROPANE	3.3	3.3	0.1
N-BUTANE	1.1	0.9	0.0
ISOBUTANE	0.4	0.5	0.0
N-PENTANE	0.4	0.3	0.0
ISOPENTANE	0.3	TRACE	0.0
CYCLOPENTANE	0.1	0.3	0.0
HEXANES PLUS	0.3	0.3	0.0
NITROGEN	3.3	22.9	0.4
OXYGEN	TRACE	2.9	0.0
ARGON	TRACE	0.1	TRACE
HYDROGEN	0.0	TRACE	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.0	0.0	3.8
HELIUM	0.10	0.10	0.04
HEATING VALUE*	1156	911	976
SPECIFIC GRAVITY	0.679	0.767	0.597

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 148 SAMPLE 16539	INDEX 149 SAMPLE 16584	INDEX 150 SAMPLE 16526
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	PITTSBURG	PITTSBURG	ROGER MILLS
FIELD	NOT GIVEN	ULAN E	CHEYENNE E
WELL NAME	HODGENS NO. 1	REEVES NO. 1-30	BLAIR PAIN NO. 1-8
LOCATION	SEC. 16, T3N, R14E	SEC. 30, T8N, R14E	SEC. 8, T13N, R22W
OWNER	COTTON PETROLEUM CORP.	LUBELL OIL CO.	TENNECO OIL EXPL. & PROD.
COMPLETED	07/--/81	07/21/82	11/01/81
SAMPLED	06/01/82	07/21/82	05/26/82
FORMATION	PENN-CROMWELL	PENN-SAVANNA	PENN-RED FORK
GEOLOGIC PROVINCE CODE	345	345	360
DEPTH, FEET	10922	1343	12738
WELLHEAD PRESSURE,PSIG	2050	NOT GIVEN	8700
OPEN FLOW, MCFD	2072	250	3290
COMPONENT, MOLE PCT			
METHANE	95.6	95.0	90.5
ETHANE	0.8	2.6	5.6
PROPANE	0.1	0.5	1.3
N-BUTANE	0.0	0.2	0.3
ISOBUTANE	0.0	TRACE	0.3
N-PENTANE	0.0	0.1	0.1
ISOPENTANE	0.0	0.1	0.1
CYCLOPENTANE	0.0	0.1	0.1
HEXANES PLUS	0.0	0.1	0.2
NITROGEN	0.3	1.0	0.3
OXYGEN	0.0	0.0	0.0
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	3.0	0.2	1.2
HELIUM	0.04	0.05	0.02
HEATING VALUE*	986	1046	1094
SPECIFIC GRAVITY	0.589	0.589	0.628

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 151 SAMPLE 16422	INDEX 152 SAMPLE 16725	INDEX 153 SAMPLE 16509
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	ROGER MILLS	ROGER MILLS	ROGER MILLS
FIELD	DURHAM	HAMMON SW	HAMMOND NW
WELL NAME	CECIL NO. 1-4	RANCH NO. 1	WOODHOUSE NO. 1-34
LOCATION	SEC. 4, T16N, R26W	SEC. 8, T13N, R21W	SEC. 34, T14N, R21W
OWNER	HOOVER&BRACKEN ENERGIES INC	COTTON PETROLEUM CORP.	VIERSEN & COCHRAN
COMPLETED	01/26/82	06/--/82	01/06/82
SAMPLED	01/26/82	12/08/82	05/01/82
FORMATION	PENN-MORROW	PENN-RED FORK	PENN-RED FORK
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	14070	13000	12566
WELLHEAD PRESSURE,PSIG	3025	9000	7600
OPEN FLOW, MCFD	6188	1200	3000
COMPONENT, MOLE PCT			
METHANE	96.0	90.9	86.9
ETHANE	0.4	5.2	7.3
PROPANE	0.1	1.4	2.4
N-BUTANE	0.0	0.3	0.4
ISOBUTANE	0.0	0.2	0.4
N-PENTANE	0.0	0.1	TRACE
ISOPENTANE	0.0	0.2	0.2
CYCLOPENTANE	0.0	TRACE	0.1
HEXANES PLUS	0.0	0.1	0.2
NITROGEN	0.2	0.3	0.9
OXYGEN	0.0	0.0	0.1
ARGON	0.0	TRACE	TRACE
HYDROGEN	0.0	0.2	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	3.3	1.3	1.0
HELIUM	0.02	0.02	0.02
HEATING VALUE*	982	1086	1123
SPECIFIC GRAVITY	0.590	0.624	0.651

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 154 SAMPLE 16534	INDEX 155 SAMPLE 16459	INDEX 156 SAMPLE 16513
STATE	OKLAHOMA	OKLAHOMA	OKLAHOMA
COUNTY	ROGER MILLS	ROGER MILLS	ROGER MILLS
FIELD	LEEDY SW	RED FORK	RED FORK
WELL NAME	R.R. CARLTON NO. 34-2	STRANAHAN NO. 1-29	ROY C. SMITH, ET AL. NO. 1
LOCATION	SEC. 34, T16N, R21W	SEC. 29, T15N, R22W	SEC. 29, T15N, R21W
OWNER	CHAMPLIN PETROLEUM CO.	DIAMOND SHAMROCK CORP.	DIAMOND SHAMROCK CORP.
COMPLETED	10/16/81	12/16/81	02/23/82
SAMPLED	06/01/82	03/22/82	05/07/82
FORMATION	PENN-PRUE	PENN-CHEROKEE L	PENN-CHEROKEE L
GEOLOGIC PROVINCE CODE	360	360	360
DEPTH, FEET	10820	12600	12512
WELLHEAD PRESSURE,PSIG	6300	6820	5650
OPEN FLOW, MCFD	2829	6600	5000
COMPONENT, MOLE PCT			
METHANE	84.2	88.8	80.5
ETHANE	9.2	6.6	7.9
PROPANE	3.5	2.0	2.3
N-BUTANE	0.8	0.4	0.4
ISOBUTANE	0.5	0.4	0.2
N-PENTANE	0.1	0.1	0.2
ISOPENTANE	0.2	0.1	0.3
CYCLOPENTANE	0.1	0.1	0.1
HEXANES PLUS	0.1	0.1	0.2
NITROGEN	0.4	0.5	6.1
OXYGEN	0.0	TRACE	1.2
ARGON	0.0	0.0	0.1
HYDROGEN	0.1	0.0	TRACE
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.8	0.9	0.6
HELIUM	0.03	0.02	0.03
HEATING VALUE*	1174	1114	1072
SPECIFIC GRAVITY	0.674	0.638	0.681

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 205 SAMPLE 16649	INDEX 206 SAMPLE 16715	INDEX 207 SAMPLE 16714
STATE	TEXAS	TEXAS	TEXAS
COUNTY	OLDHAM	OLDHAM	OLDHAM
FIELD	LAMBERT I	LAMBERT II	SUNDANCE
WELL NAME	JAY TAYLOR D-1	MANSFIELD NO. A-2	PARKER CREEK NO. 1
LOCATION	SEC.82,BLK GM-5,WMD LEE SUR.	LEA. 310 BLK H-3 ST CAP LAND	LEA. 316 ST. CAP. LAND SUR.
OWNER	BAKER & TAYLOR DRLG. CO.	BAKER & TAYLOR DRLG. CO.	BAKER & TAYLOR DRLG. CO.
COMPLETED	NOT GIVEN	10/17/79	09/02/81
SAMPLED	09/20/82	12/06/82	12/06/82
FORMATION	PENN-GRANITE WASH	PENN-MISSOURIAN LS	PERM-GRANITE WASH U
GEOLOGIC PROVINCE CODE	435	435	435
DEPTH, FEET	NOT GIVEN	6075	7020
WELLHEAD PRESSURE,PSIG	NOT GIVEN	NOT GIVEN	NOT GIVEN
OPEN FLOW, MCFD	NOT GIVEN	43	146
COMPONENT, MOLE PCT			
METHANE	13.7	27.3	15.1
ETHANE	7.4	9.5	8.2
PROPANE	20.0	22.7	24.9
N-BUTANE	8.6	9.7	15.8
ISOBUTANE	3.3	3.5	6.1
N-PENTANE	1.1	2.7	3.6
ISOPENTANE	1.7	3.4	8.2
CYCLOPENTANE	0.1	1.7	1.6
HEXANES PLUS	0.2	2.1	2.6
NITROGEN	34.8	17.0	13.5
OXYGEN	TRACE	0.0	TRACE
ARGON	0.1	TRACE	TRACE
HYDROGEN	6.7	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	0.2	TRACE
HELIUM	2.03	0.16	0.18
HEATING VALUE*	1348	1914	2383
SPECIFIC GRAVITY	1.137	1.302	1.553

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 208 SAMPLE 16551	INDEX 209 SAMPLE 16450	INDEX 210 SAMPLE 16419
STATE	TEXAS	TEXAS	TEXAS
COUNTY	OLDHAM	PECOS	PECOS
FIELD	WILDCAT	GOMEZ SE	PUCKETT W
WELL NAME	OLD HIGH NO. 1	M. MCCOMB GAS UNIT NO. 1	EMMA LOU UNIT NO. 1
LOCATION	SEC. 76, BLK GM-5 WMD LEE SR	SEC. 2, BLK.198, TUNNELL SUR	SEC. 58, BLK. 101, AB&M SUR.
OWNER	BAKER & TAYLOR DRLG. CO.	EXXON CO., U.S.A.	GULF OIL CORP.
COMPLETED	NOT GIVEN	11/23/81	11/25/77
SAMPLED	06/22/82	03/16/82	01/29/82
FORMATION	PENN-CANYON LIME	ORDO-ELLENBURGER	PENN-BEND CONGLOMERATE
GEOLOGIC PROVINCE CODE	435	430	430
DEPTH, FEET	5675	25404	22156
WELLHEAD PRESSURE,PSIG	NOT GIVEN	6400	14707
OPEN FLOW, MCFD	NOT GIVEN	4850	8800
COMPONENT, MOLE PCT			
METHANE	12.0	95.8	94.7
ETHANE	2.1	0.0	0.2
PROPANE	1.9	0.0	TRACE
N-BUTANE	0.7	0.0	TRACE
ISOBUTANE	0.5	0.0	0.0
N-PENTANE	0.3	0.0	TRACE
ISOPENTANE	0.2	0.0	0.0
CYCLOPENTANE	0.3	0.0	TRACE
HEXANES PLUS	0.4	0.0	0.1
NITROGEN	54.7	0.4	0.3
OXYGEN	0.0	0.0	0.0
ARGON	0.4	TRACE	0.0
HYDROGEN	TRACE	0.0	TRACE
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	24.9	3.7	4.6
HELIUM	1.58	0.02	0.01
HEATING VALUE*	302	970	968
SPECIFIC GRAVITY	1.092	0.592	0.603

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 211 SAMPLE 16716	INDEX 212 SAMPLE 16547	INDEX 213 SAMPLE 16548
STATE	TEXAS	TEXAS	TEXAS
COUNTY	POTTER	REAGAN	REAGAN
FIELD	LAMBERT IV	BENEDUM NE	REAGAN
WELL NAME	BUSH "2-A" NO. 1	BRANCH NO. 1C	BRANCH NO. 1T
LOCATION	SEC. 2, BLK B&B, ORTMAN SUR.	HE&WT SUR.	HE&WT SUR.
OWNER	BAKER & TAYLOR DRLG. CO.	SAXON OIL CO.	SAXON OIL CO.
COMPLETED	10/18/80	05/15/82	09/20/81
SAMPLED	12/06/82	06/17/82	06/17/82
FORMATION	PENN-CISCO SD	PENN-BEND LIME	SILU-FUSSELMAN
GEOLOGIC PROVINCE CODE	440	430	430
DEPTH, FEET	6028	10380	11494
WELLHEAD PRESSURE,PSIG	NOT GIVEN	1433	2831
OPEN FLOW, MCFD	5	10410	3021
COMPONENT, MOLE PCT			
METHANE	31.6	82.3	78.9
ETHANE	4.3	10.0	11.2
PROPANE	3.8	3.5	4.4
N-BUTANE	1.2	0.9	1.3
ISOBUTANE	0.9	0.7	0.7
N-PENTANE	0.5	0.4	0.3
ISOPENTANE	0.3	0.1	0.4
CYCLOPENTANE	0.4	0.1	0.1
HEXANES PLUS	0.6	0.3	0.4
NITROGEN	54.6	0.8	1.7
OXYGEN	0.1	0.0	0.0
ARGON	0.2	0.0	0.0
HYDROGEN	0.1	0.1	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.3	0.8	0.3
HELIUM	1.17	0.03	0.09
HEATING VALUE*	647	1198	1236
SPECIFIC GRAVITY	0.909	0.693	0.718

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 214 SAMPLE 16482	INDEX 215 SAMPLE 16436	INDEX 216 SAMPLE 16689
STATE	TEXAS	TEXAS	TEXAS
COUNTY	RUSK	RUSK	SHELBY
FIELD	CYRIL	TRAWICK NW	TENAHA
WELL NAME	PEARL BARRON NO. 1	M.G. MOORE NO. 1	SPRING VALLEY RANCH NO. 1
LOCATION	JAMES SMITH SUR., A-709	JOSEPH E. PEYTON, A-639	JESSE SULLINS SUR., A-636
OWNER	MCGOLDRICK OIL CO.	PETRUS OPERATING CO., INC.	SUN PRODUCTION CO.
COMPLETED	03/--/81	02/25/82	04/10/82
SAMPLED	04/06/82	02/25/82	10/--/82
FORMATION	JURA-COTTON VALLEY	CRET-PETTIT	CRET-PALUXY SD
GEOLOGIC PROVINCE CODE	260	260	260
DEPTH, FEET	10700	7854	3480
WELLHEAD PRESSURE,PSIG	4800	3250	1620
OPEN FLOW, MCFD	500	NOT GIVEN	8100
COMPONENT, MOLE PCT			
METHANE	89.1	88.4	84.0
ETHANE	6.2	2.7	2.3
PROPANE	1.8	1.8	0.7
N-BUTANE	0.5	0.8	0.2
ISOBUTANE	0.5	0.8	0.2
N-PENTANE	0.2	0.7	0.1
ISOPENTANE	0.1	0.5	0.1
CYCLOPENTANE	TRACE	0.2	0.1
HEXANES PLUS	0.2	1.0	0.3
NITROGEN	0.3	2.3	11.8
OXYGEN	TRACE	0.0	TRACE
ARGON	0.0	0.0	TRACE
HYDROGEN	0.0	0.0	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	1.1	0.7	TRACE
HELIUM	0.01	0.02	0.07
HEATING VALUE*	1117	1154	952
SPECIFIC GRAVITY	0.641	0.677	0.640

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 217 SAMPLE 16505	INDEX 218 SAMPLE 16448	INDEX 219 SAMPLE 16487
STATE	TEXAS	TEXAS	TEXAS
COUNTY	WARD	WARD	WEBB
FIELD	BURKHOLDER	NOT GIVEN	CALLAGHAN N
WELL NAME	CHINA LAKE 205 NO. 1	JANELLE EDWARDS NO. 5	W.N. MCELROY NO. 1
LOCATION	H&TC SUR.	SEC. 3, BLK. B-20, PSL SUR.	SEC. 525, AB&M SUR., A-1978
OWNER	UNION TEXAS PET. CORP.	SOUTHLAND ROYALTY CO.	MOBIL PROD. TEX & N MEX
COMPLETED	04/29/82	03/09/82	01/23/81
SAMPLED	04/29/82	03/09/82	03/31/82
FORMATION	SILU-FUSSELMAN	PERM-TUBB	ORDO-WILCOX
GEOLOGIC PROVINCE CODE	430	430	220
DEPTH, FEET	15963	4888	6492
WELLHEAD PRESSURE,PSIG	5000	NOT GIVEN	3161
OPEN FLOW, MCFD	15000	2213	7500
COMPONENT, MOLE PCT			
METHANE	92.6	84.6	92.8
ETHANE	0.3	8.1	3.4
PROPANE	0.1	3.5	1.6
N-BUTANE	0.0	1.0	0.5
ISOBUTANE	0.0	0.4	0.3
N-PENTANE	0.0	0.3	0.1
ISOPENTANE	0.0	0.2	0.2
CYCLOPENTANE	0.0	0.1	0.1
HEXANES PLUS	0.0	0.2	0.1
NITROGEN	1.6	1.4	0.6
OXYGEN	0.2	TRACE	0.1
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.0	TRACE	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	5.2	0.1	0.3
HELIUM	0.01	0.03	TRACE
HEATING VALUE*	946	1176	1091
SPECIFIC GRAVITY	0.615	0.673	0.616

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 220 SAMPLE 16414	INDEX 221 SAMPLE 16522	INDEX 222 SAMPLE 16571
STATE	TEXAS	TEXAS	TEXAS
COUNTY	WHARTON	WHEELER	WHEELER
FIELD	SPANISH CAMP	FULLER NW	NOT GIVEN
WELL NAME	IDA K. HOSEA NO. 1	MILLS RANCH NO. 1-98	LANCASTER NO. 1-2
LOCATION	STEVEN F. AUSTIN SUR., A-3	SEC. 98, BLK. 13, H&GN SUR.	SEC.2,BLK.H,W.G.SIMPSON SUR.
OWNER	WAINOCO OIL & GAS CO.	HELMERICH & PAYNE, INC.	PIONEER PRODUCTION CORP.
COMPLETED	NOT GIVEN	09/06/81	08/28/81
SAMPLED	01/28/82	05/19/82	07/--/82
FORMATION	OLIG-FRIO	SILU-HUNTON	PENN-MORROW
GEOLOGIC PROVINCE CODE	220	360	360
DEPTH, FEET	5388	20921	14560
WELLHEAD PRESSURE,PSIG	2250	6993	8555
OPEN FLOW, MCFD	5200	64000	22000
COMPONENT, MOLE PCT			
METHANE	97.9	93.6	96.0
ETHANE	1.1	2.3	1.1
PROPANE	0.1	1.0	0.2
N-BUTANE	TRACE	0.4	0.0
ISOBUTANE	0.0	0.3	0.0
N-PENTANE	TRACE	0.2	0.0
ISOPENTANE	TRACE	0.2	0.0
CYCLOPENTANE	TRACE	0.1	0.0
HEXANES PLUS	TRACE	0.2	0.0
NITROGEN	0.6	0.6	0.4
OXYGEN	TRACE	TRACE	0.0
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.0	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	1.1	2.2
HELIUM	0.01	0.01	0.02
HEATING VALUE*	1014	1070	998
SPECIFIC GRAVITY	0.563	0.614	0.584

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 223 SAMPLE 16707	INDEX 224 SAMPLE 16445	INDEX 225 SAMPLE 16441
STATE	TEXAS	TEXAS	TEXAS
COUNTY	WHEELER	WHEELER	WISE
FIELD	WHEELER PAN	WILDCAT	BRIDGEPORT
WELL NAME	R.N. BYERS NO. 1	DIXON NO. 1	HENRY TACKEL NO. 2T
LOCATION	SEC.23,BLK L,J.M.LINDSEY SUR	SEC. 60, BLK. 13, H&GN SUR.	MATAGORDA CSL SUR., A-535
OWNER	SUN EXPLORATION & PROD. CO.	WHEELER OIL CO.	MITCHELL ENERGY CORP.
COMPLETED	02/24/82	02/15/82	01/30/81
SAMPLED	11/03/82	03/01/82	03/05/82
FORMATION	DEVO-HUNTON	PERM-GRANITE WASH	PENN-ATOKA CONG. 5250
GEOLOGIC PROVINCE CODE	360	360	260
DEPTH, FEET	16065	2835	5018
WELLHEAD PRESSURE,PSIG	5120	700	920
OPEN FLOW, MCFD	22500	10	500
COMPONENT, MOLE PCT			
METHANE	93.9	82.0	79.7
ETHANE	3.1	1.8	8.3
PROPANE	0.7	0.5	6.2
N-BUTANE	0.2	0.2	0.0
ISOBUTANE	TRACE	0.1	1.7
N-PENTANE	0.1	TRACE	0.6
ISOPENTANE	0.1	0.1	0.0
CYCLOPENTANE	TRACE	TRACE	0.1
HEXANES PLUS	0.1	0.1	0.2
NITROGEN	1.0	14.0	3.3
OXYGEN	0.1	0.5	0.0
ARGON	TRACE	0.1	0.0
HYDROGEN	0.2	0.0	0.0
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.5	0.3	0.0
HELIUM	0.03	0.38	0.08
HEATING VALUE*	1046	895	1213
SPECIFIC GRAVITY	0.595	0.640	0.716

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 226 SAMPLE 16585	INDEX 227 SAMPLE 16661	INDEX 228 SAMPLE 16621
STATE	TEXAS	TEXAS	UTAH
COUNTY	ZAPATA	ZAPATA	CARBON
FIELD	ALEJANDRENAS	TAQUACHIE CREEK	NINE MILE CANYON
WELL NAME	LOPEZ NO. A-1	L. ARMOUR HINNANT NO. 1-252	KEEL RANCH NO. 1-16
LOCATION	I.M. SANCHEZ PORCION 21,A-81	R.HINNANT 252 SUR., A-509	SEC. 16, T12S, R13E
OWNER	GULF ENERGY PROD. CO.	BLOCKER EXPLORATION CO.	TRIGG DRILLING CO., INC.
COMPLETED	04/13/81	12/04/81	10/23/82
SAMPLED	07/22/82	09/--/82	08/18/82
FORMATION	EOCE-WILCOX U	EOCE-WILCOX	CRET-MANCOS
GEOLOGIC PROVINCE CODE	220	220	575
DEPTH, FEET	9150	11162	8084
WELLHEAD PRESSURE,PSIG	4000	7250	2500
OPEN FLOW, MCFD	3900	13300	440
COMPONENT, MOLE PCT			
METHANE	94.7	92.0	93.0
ETHANE	1.8	1.7	3.7
PROPANE	0.3	0.2	1.3
N-BUTANE	0.1	0.0	0.4
ISOBUTANE	TRACE	0.0	0.2
N-PENTANE	TRACE	0.0	0.1
ISOPENTANE	TRACE	0.0	0.3
CYCLOPENTANE	TRACE	0.0	0.1
HEXANES PLUS	0.1	0.0	0.2
NITROGEN	0.2	0.1	0.2
OXYGEN	TRACE	TRACE	TRACE
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	2.6	5.8	0.3
HELIUM	TRACE	TRACE	TRACE
HEATING VALUE*	1008	968	1094
SPECIFIC GRAVITY	0.595	0.621	0.612

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 229 SAMPLE 16506	INDEX 230 SAMPLE 16402	INDEX 231 SAMPLE 16610
STATE	UTAH	UTAH	UTAH
COUNTY	SUMMIT	UINTAH	UINTAH
FIELD	ANSCHUTZ RANCH E	NATURAL BUTTES	NATURAL BUTTES
WELL NAME	CHAMPLIN 458 F-2	CHAPITA WELLS 47-30	CIGE NO. 940-7-10-21J
LOCATION	SEC. 21, T4N, R8E	SEC. 30, T9S, R23E	SEC. 7, T10S, R21E
OWNER	AMOCO PRODUCTION CO.	BELCO DEVELOPMENT CORP.	CIG EXPLORATION, INC.
COMPLETED	12/--/81	12/30/81	08/05/82
SAMPLED	01/15/82	12/30/81	08/05/82
FORMATION	JURA-NUGGET	EOCE-WASATCH	EOCE-WASATCH
GEOLOGIC PROVINCE CODE	570	575	575
DEPTH, FEET	15132	7442	5034
WELLHEAD PRESSURE,PSIG	3520	NOT GIVEN	2019
OPEN FLOW, MCFD	NOT GIVEN	2400	4500
COMPONENT, MOLE PCT			
METHANE	79.9	93.4	94.6
ETHANE	11.3	3.6	3.2
PROPANE	4.0	1.2	0.8
N-BUTANE	0.8	0.3	0.2
ISOBUTANE	0.6	0.3	0.2
N-PENTANE	0.2	0.1	0.1
ISOPENTANE	0.2	0.1	0.1
CYCLOPENTANE	TRACE	0.1	0.1
HEXANES PLUS	TRACE	0.2	0.2
NITROGEN	2.7	0.6	0.2
OXYGEN	0.1	0.0	TRACE
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.0	TRACE	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	0.0	0.2
HELIUM	0.02	0.02	TRACE
HEATING VALUE*	1180	1085	1073
SPECIFIC GRAVITY	0.691	0.606	0.597

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 232 SAMPLE 16737	INDEX 233 SAMPLE 16438	INDEX 234 SAMPLE 16635
STATE	WEST VIRGINIA	WYOMING	WYOMING
COUNTY	FAYETTE	CAMPBELL	CARBON
FIELD	PAINT CREEK	POWELL N	ECHO SPRINGS
WELL NAME	EASTERN GAS FUEL NO. 76	SARA ARMSTRONG-FED. NO. 2	ECHO SPRINGS NO.1-28
LOCATION	VALLFY DIST. POWELLTON QUAD.	SEC. 15, T41N, R74W	SEC. 28, T20N, R93W
OWNER	ASHLAND EXPLORATION CO.	HPC, INC.	JERRY CHAMBERS EXPL. CO.
COMPLETED	04/12/82	12/--/80	09/07/82
SAMPLED	12/17/82	02/24/82	09/03/82
FORMATION	MISS-WEIR U	CRET-FRONTIER	CRET-ALMOND
GEOLOGIC PROVINCE CODE	160	515	535
DEPTH, FEET	3236	11795	9597
WELLHEAD PRESSURE,PSIG	380	1000	4200
OPEN FLOW, MCFD	8887	128	400
COMPONENT, MOLE PCT			
METHANE	94.1	80.6	85.3
ETHANE	3.9	12.0	7.9
PROPANE	0.6	4.0	2.2
N-BUTANE	0.2	0.7	0.7
ISOBUTANE	0.1	0.3	0.3
N-PENTANE	TRACE	0.1	0.1
ISOPENTANE	TRACE	0.2	0.2
CYCLOPENTANE	TRACE	TRACE	TRACE
HEXANES PLUS	0.1	0.1	0.1
NITROGEN	0.4	0.8	0.7
OXYGEN	0.0	TRACE	0.2
ARGON	0.1	TRACE	0.1
HYDROGEN	0.3	0.0	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.1	1.0	2.0
HELIUM	0.04	0.01	TRACE
HEATING VALUE*	1055	1187	1115
SPECIFIC GRAVITY	0.588	0.689	0.662

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 235 SAMPLE 16656	INDEX 236 SAMPLE 16657	INDEX 237 SAMPLE 16626
STATE	WYOMING	WYOMING	WYOMING
COUNTY	CARBON	CARBON	FREMONT
FIELD	WEST SIDE CANAL	WEST SIDE CANAL	FULLER RESERVOIR
WELL NAME	UNIT NO. 14	UNIT NO. 14	DAVISON RANCH-FED. NO. 2-12
LOCATION	SEC. 18, T12N, R91W	SEC. 18, T12N, R91W	SEC. 12, T36N, R94W
OWNER	SOUTHLAND ROYALTY CO.	SOUTHLAND ROYALTY CO.	ANR PRODUCTION CO.
COMPLETED	03/01/82	03/01/82	02/17/82
SAMPLED	09/21/82	09/21/82	08/27/82
FORMATION	CRET-LEWIS	CRET-LANCE	EOCE-FORT UNION
GEOLOGIC PROVINCE CODE	535	535	530
DEPTH, FEET	4346	3010	3970
WELLHEAD PRESSURE,PSIG	730	710	1750
OPEN FLOW, MCFD	1000	4850	853
COMPONENT, MOLE PCT			
METHANE	89.9	96.4	86.6
ETHANE	5.2	0.8	3.7
PROPANE	1.9	0.2	4.0
N-BUTANE	0.5	0.1	1.5
ISOBUTANE	0.3	0.0	0.7
N-PENTANE	0.1	0.1	0.4
ISOPENTANE	0.3	0.1	0.6
CYCLOPENTANE	TRACE	TRACE	0.1
HEXANES PLUS	0.1	TRACE	0.3
NITROGEN	0.8	1.5	1.8
OXYGEN	0.2	0.3	TRACE
ARGON	0.1	TRACE	TRACE
HYDROGEN	0.4	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.3	0.4	0.1
HELIUM	TRACE	0.01	0.02
HEATING VALUE*	1104	1008	1184
SPECIFIC GRAVITY	0.628	0.577	0.682

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 238 SAMPLE 16542	INDEX 239 SAMPLE 16722	INDEX 240 SAMPLE 16670
STATE	WYOMING	WYOMING	WYOMING
COUNTY	FREMONT	FREMONT	FREMONT
FIELD	MADDEN DEEP	MUDDY RIDGE	SAND MESA
WELL NAME	SPRATT NO. 2-4	TRIBAL NO. 30-21	BOYSEN-AMOCO TRIBAL NO.1-18A
LOCATION	SEC. 4, T38N, R90W	SEC. 30, T4N, R3E	SEC. 18, T4N, R4E
OWNER	MONSANTO CO.	TOM BROWN, INC.	MICHIGAN WISCONSIN PL CO.
COMPLETED	07/18/81	10/10/81	07/15/79
SAMPLED	02/07/82	12/06/82	09/28/82
FORMATION	CRET-FIRST SHANNON	EOCE-FORT UNION	EOCE-FORT UNION
GEOLOGIC PROVINCE CODE	530	530	530
DEPTH, FEET	17050	7350	15620
WELLHEAD PRESSURE,PSIG	7300	1000	NOT GIVEN
OPEN FLOW, MCFD	38334	500	NOT GIVEN
COMPONENT, MOLE PCT			
METHANE	96.6	88.0	93.4
ETHANE	0.1	6.5	3.4
PROPANE	TRACE	2.2	0.5
N-BUTANE	0.0	0.5	0.1
ISOBUTANE	0.0	0.7	0.1
N-PENTANE	0.0	0.1	TRACE
ISOPENTANE	0.0	0.4	TRACE
CYCLOPENTANE	0.0	0.1	TRACE
HEXANES PLUS	0.0	0.2	TRACE
NITROGEN	0.2	0.8	0.4
OXYGEN	TRACE	0.1	TRACE
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.1	0.2
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	2.9	0.1	1.7
HELIUM	TRACE	0.01	TRACE
HEATING VALUE*	981	1141	1027
SPECIFIC GRAVITY	0.583	0.646	0.595

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 241 SAMPLE 16671	INDEX 242 SAMPLE 16481	INDEX 243 SAMPLE 16553
STATE	WYOMING	WYOMING	WYOMING
COUNTY	FREMONT	LINCOLN	LINCOLN
FIELD	SAND MESA	FONTENELLE	FONTENELLE
WELL NAME	BOYSEN-AMOCO TRIBAL NO. 1-24	FED. NO. 23-25	FONTENELLE FED. NO. 35-22
LOCATION	SEC. 24, T4N, R4E	SEC. 25, T26N, R112W	SEC. 35, T26N, R112W
OWNER	MICHIGAN WISCONSIN PL CO.	NATURAL GAS CORP. OF CALIF.	AMERICAN QUASAR PET. CO.
COMPLETED	07/25/79	08/12/81	NOT GIVEN
SAMPLED	09/29/82	03/31/82	06/04/82
FORMATION	EOCE-FORT UNION	CRET-FRONTIER	ORDO-BIG HORN
GEOLOGIC PROVINCE CODE	530	535	535
DEPTH, FEET	13139	8664	16040
WELLHEAD PRESSURE,PSIG	8625	3400	1400
OPEN FLOW, MCFD	2250	1800	2200
COMPONENT, MOLE PCT			
METHANE	95.7	91.8	1.7
ETHANE	0.5	4.8	TRACE
PROPANE	TRACE	1.4	TRACE
N-BUTANE	0.0	0.3	0.0
ISOBUTANE	0.0	0.2	0.0
N-PENTANE	0.0	TRACE	0.0
ISOPENTANE	0.0	0.1	0.0
CYCLOPENTANE	0.0	0.1	0.0
HEXANES PLUS	0.0	0.1	0.0
NITROGEN	0.3	0.8	2.0
OXYGEN	0.1	TRACE	TRACE
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	0.0	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	3.3	0.3	95.9
HELIUM	TRACE	0.01	0.21
HEATING VALUE*	979	1082	18
SPECIFIC GRAVITY	0.590	0.612	1.495

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 244 SAMPLE 16604	INDEX 245 SAMPLE 16603	INDEX 246 SAMPLE 16674
STATE	WYOMING	WYOMING	WYOMING
COUNTY	LINCOLN	LINCOLN	LINCOLN
FIELD	GREEN RIVER BEND	LABARGE SE	MOXA ARCH
WELL NAME	GREEN RIV. BEND UNIT NO.82-6	LARSON NO. 1-17	WHISKEY BUTTES NO. 34
LOCATION	SEC. 6, T26N, R112W	SEC. 17, T26N, R112W	SEC. 7, T21N, R111W
OWNER	BELCO PETROLEUM CORP.	BELCO PETROLEUM CORP.	AMOCO PRODUCTION CO.
COMPLETED	04/21/82	03/05/82	05/05/82
SAMPLED	08/10/82	08/10/82	09/20/82
FORMATION	CRET-2ND FRONTIER	CRET-2ND FRONTIER	CRET-FRONTIER
GEOLOGIC PROVINCE CODE	535	535	535
DEPTH, FEET	6840	7104	11000
WELLHEAD PRESSURE,PSIG	3000	2400	3800
OPEN FLOW, MCFD	2168	340	748
COMPONENT, MOLE PCT			
METHANE	89.3	89.0	37.9
ETHANE	5.6	5.9	14.6
PROPANE	2.2	2.2	23.9
N-BUTANE	0.5	0.5	8.9
ISOBUTANE	0.4	0.4	8.3
N-PENTANE	0.1	0.1	0.3
ISOPENTANE	0.3	0.3	3.1
CYCLOPENTANE	0.4	0.1	0.4
HEXANES PLUS	0.3	0.2	1.3
NITROGEN	0.7	0.9	0.7
OXYGEN	TRACE	0.1	0.1
ARGON	0.0	TRACE	0.0
HYDROGEN	0.1	TRACE	TRACE
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.3	0.2	0.5
HELIUM	0.01	0.01	TRACE
HEATING VALUE*	1140	1126	2072
SPECIFIC GRAVITY	0.647	0.639	1.240

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 247 SAMPLE 16602	INDEX 248 SAMPLE 16467	INDEX 249 SAMPLE 16580
STATE	WYOMING	WYOMING	WYOMING
COUNTY	LINCOLN	NATRONA	PARK
FIELD	STEAD CANYON	TEEPEE FLATS	MEETEETSE
WELL NAME	STEAD CANYON UNIT NO. 8-11	TEEPEE FLATS NO. 16-1	FED. NO. 2-21
LOCATION	SEC. 11, T26N, R112W	SEC. 16, T37N, R86W	SEC. 21, T49N, R99W
OWNER	BELCO PETROLEUM CORP.	MONCRIEF OIL	TERRA RESOURCES, INC.
COMPLETED	04/03/82	01/16/81	03/03/82
SAMPLED	08/10/82	03/26/82	07/16/82
FORMATION	CRET-2ND FRONTIER	CRET-FRONTIER	CRET-MUDDY
GEOLOGIC PROVINCE CODE	535	530	520
DEPTH, FEET	7693	18246	9008
WELLHEAD PRESSURE,PSIG	2500	8900	2390
OPEN FLOW, MCFD	454	11000	2784
COMPONENT, MOLE PCT			
METHANE	90.6	97.5	87.6
ETHANE	4.9	0.8	7.0
PROPANE	1.9	0.1	1.4
N-BUTANE	0.4	0.0	0.5
ISOBUTANE	0.3	0.0	0.3
N-PENTANE	0.1	0.0	0.1
ISOPENTANE	0.2	0.0	0.2
CYCLOPENTANE	0.1	0.0	0.2
HEXANES PLUS	0.1	0.0	0.3
NITROGEN	0.8	0.3	1.9
OXYGEN	0.1	TRACE	0.0
ARGON	TRACE	TRACE	0.0
HYDROGEN	0.1	0.0	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.4	1.3	0.4
HELIUM	0.01	TRACE	0.02
HEATING VALUE*	1100	1005	1112
SPECIFIC GRAVITY	0.626	0.573	0.643

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H_2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 250 SAMPLE 16581	INDEX 251 SAMPLE 16512	INDEX 252 SAMPLE 16574
STATE	WYOMING	WYOMING	WYOMING
COUNTY	PARK	PARK	SUBLETTE
FIELD	MEETEETSE	OREGON BASIN SE	BIRD CANYON
WELL NAME	FED. NO. 1-28	DUNCAN STATE 2537 NO.12-30A	FED. NO. 30-31
LOCATION	SEC. 28, T49N, R99W	SEC. 30, T50N, R99W	SEC. 31, T28N, R111W
OWNER	TERRA RESOURCES, INC.	ANSCHUTZ CORP.	ENERGETICS, INC.
COMPLETED	02/25/82	--/--/81	NOT GIVEN
SAMPLED	07/16/82	04/30/82	07/11/82
FORMATION	CRET-MUDDY	CRET-MUDDY	CRET-BEAR RIVER
GEOLOGIC PROVINCE CODE	520	520	535
DEPTH, FEET	8900	6800	10290
WELLHEAD PRESSURE,PSIG	2410	2100	NOT GIVEN
OPEN FLOW, MCFD	427	1000	2172
COMPONENT, MOLE PCT			
METHANE	81.0	24.7	95.1
ETHANE	7.0	1.4	3.1
PROPANE	1.7	0.3	0.6
N-BUTANE	0.4	0.0	0.1
ISOBUTANE	0.3	0.0	TRACE
N-PENTANE	0.1	0.0	TRACE
ISOPENTANE	0.2	0.0	0.1
CYCLOPENTANE	0.1	0.0	TRACE
HEXANES PLUS	0.2	0.0	TRACE
NITROGEN	8.7	73.3	0.5
OXYGEN	TRACE	0.1	0.0
ARGON	TRACE	TRACE	TRACE
HYDROGEN	0.1	TRACE	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.2	0.1	0.3
HELIUM	0.01	TRACE	0.01
HEATING VALUE*	1041	283	1042
SPECIFIC GRAVITY	0.667	0.868	0.583

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 253 SAMPLE 16659	INDEX 254 SAMPLE 16560	INDEX 255 SAMPLE 16609
STATE	WYOMING	WYOMING	WYOMING
COUNTY	SUBLETTE	SUBLETTE	SUBLETTE
FIELD	CHIMNEY BUTTE	LABARGE	LABARGE N
WELL NAME	C 75-36	FOGARTY CREEK UNIT NO. 11-24	N LABARGE UNIT NO. 27-17
LOCATION	SEC. 36, T28N, R113W	SEC. 24, T28N, R115W	SEC. 17, T27N, R113W
OWNER	BELCO PETROLEUM CORP.	EXXON CO., U.S.A.	BELCO PETROLEUM CORP.
COMPLETED	03/29/82	08/09/82	08/20/80
SAMPLED	09/--/82	06/24/82	08/10/82
FORMATION	CRET-MESA VERDE	ORDO-BIG HORN	CRET-1ST & 2ND FRONTIER
GEOLOGIC PROVINCE CODE	535	535	535
DEPTH, FEET	2900	17316	6301
WELLHEAD PRESSURE,PSIG	1225	NOT GIVEN	1100
OPEN FLOW, MCFD	1579	9950	1756
COMPONENT, MOLE PCT			
METHANE	92.3	5.8	91.3
ETHANE	3.2	TRACE	4.9
PROPANE	1.7	0.0	1.5
N-BUTANE	0.4	0.0	0.4
ISOBUTANE	0.4	0.0	0.2
N-PENTANE	0.1	0.0	0.1
ISOPENTANE	0.2	0.0	0.2
CYCLOPENTANE	TRACE	0.0	0.1
HEXANES PLUS	0.1	0.0	0.1
NITROGEN	0.9	4.6	0.7
OXYGEN	0.1	0.1	TRACE
ARGON	TRACE	0.1	TRACE
HYDROGEN	0.1	TRACE	0.1
HYDROGEN SULFIDE**	0.0	1.6	0.0
CARBON DIOXIDE	0.4	87.2	0.3
HELIUM	0.02	0.63	0.02
HEATING VALUE*	1082	69	1094
SPECIFIC GRAVITY	0.615	1.432	0.618

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 256 SAMPLE 16497	INDEX 257 SAMPLE 16606	INDEX 258 SAMPLE 16605
STATE	WYOMING	WYOMING	WYOMING
COUNTY	SUBLETTE	SUBLETTE	SUBLETTE
FIELD	NEW FORK	OTE CREEK	PINE GROVES
WELL NAME	NEW FORK NO. 1	OTE CREEK NO. 3-8	FOGARTY CREEK UNIT NO. 8-20
LOCATION	SEC. 25, T30N, R108W	SEC. 8, T32N, R114W	SEC. 8, T28N, R114W
OWNER	AMERICAN HUNTER EXP. CO.	BELCO PETROLEUM CORP.	BELCO PETROLEUM CORP.
COMPLETED	04/14/82	10/30/80	01/13/78
SAMPLED	04/14/82	08/10/82	08/10/82
FORMATION	EOCE-FORT UNION	CRET-MESA VERDE	CRET-2ND FRONTIER
GEOLOGIC PROVINCE CODE	535	535	535
DEPTH, FEET	10812	5174	7967
WELLHEAD PRESSURE,PSIG	NOT GIVEN	1100	660
OPEN FLOW, MCFD	1476	129	827
COMPONENT, MOLE PCT			
METHANE	79.6	83.5	90.0
ETHANE	4.4	7.4	5.0
PROPANE	5.0	3.9	1.9
N-BUTANE	3.7	0.9	0.5
ISOBUTANE	3.9	1.6	0.3
N-PENTANE	0.7	0.3	0.1
ISOPENTANE	0.8	0.5	0.3
CYCLOPENTANE	0.4	0.2	0.2
HEXANES PLUS	0.7	0.4	0.2
NITROGEN	0.6	1.0	1.3
OXYGEN	0.1	TRACE	TRACE
ARGON	0.0	0.0	TRACE
HYDROGEN	0.0	0.1	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	0.0	0.2	0.2
HELIUM	TRACE	0.03	0.04
HEATING VALUE*	1386	1226	1113
SPECIFIC GRAVITY	0.798	0.702	0.634

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 259 SAMPLE 16564	INDEX 260 SAMPLE 16413	INDEX 261 SAMPLE 16545
STATE	WYOMING	WYOMING	WYOMING
COUNTY	SUBLETTE	SWEETWATER	SWEETWATER
FIELD	RILEY RIDGE	ECHO SPRINGS	MOXA ARCH
WELL NAME	RILEY RIDGE-FED. NO. 12-43	CHAMPLIN 254 AMOCO C NO. 1	7 MILE GULCH NO. 7
LOCATION	SEC. 12, T29N, R115W	SEC. 21, T20N, R93W	SEC. 13, T20N, R112W
OWNER	AMERICAN QUASAR PET. CO.	AMOCO PRODUCTION CO.	AMOCO PRODUCTION CO.
COMPLETED	NOT GIVEN	10/02/81	05/--/82
SAMPLED	05/03/82	01/22/82	06/09/82
FORMATION	MISS-MADISON	CRET-ALMOND U	CRET-FRONTIER
GEOLOGIC PROVINCE CODE	535	535	535
DEPTH, FEET	14480	9804	11676
WELLHEAD PRESSURE,PSIG	4280	3950	4800
OPEN FLOW, MCFD	9866	2519	4702
COMPONENT, MOLE PCT			
METHANE	17.6	86.9	81.9
ETHANE	TRACE	7.6	11.1
PROPANE	TRACE	2.1	3.5
N-BUTANE	0.0	0.4	0.7
ISOBUTANE	0.0	0.4	0.6
N-PENTANE	0.0	0.1	0.1
ISOPENTANE	0.0	0.2	0.2
CYCLOPENTANE	0.0	TRACE	0.1
HEXANES PLUS	0.0	0.1	0.2
NITROGEN	7.2	0.4	1.0
OXYGEN	TRACE	TRACE	TRACE
ARGON	0.1	TRACE	TRACE
HYDROGEN	1.6	TRACE	0.1
HYDROGEN SULFIDE**	0.1	0.0	0.0
CARBON DIOXIDE	72.8	1.8	0.5
HELIUM	0.60	0.01	0.01
HEATING VALUE*	184	1116	1190
SPECIFIC GRAVITY	1.285	0.653	0.685

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 262 SAMPLE 16561	INDEX 263 SAMPLE 16442	INDEX 264 SAMPLE 16693
STATE	WYOMING	WYOMING	WYOMING
COUNTY	SWEETWATER	SWEETWATER	SWEETWATER
FIELD	NICKEY	NOT GIVEN	TRITON
WELL NAME	NICKEY UNIT NO. 1-13A	SIBERIA RIDGE UNIT NO. 12	TRITON UNIT NO. 6
LOCATION	SEC. 13, T24N, R96W	SEC. 28, T22N, R95W	SEC. 5, T14N, R95W
OWNER	ENERGY RESERVES GROUP, INC.	DIAMOND SHAMROCK CORP.	HPC, INC.
COMPLETED	05/11/81	09/29/81	11/16/81
SAMPLED	06/30/82	03/04/82	10/17/82
FORMATION	CRET-ALMOND	CRET-MESAVERDE	CRET-LEWIS
GEOLOGIC PROVINCE CODE	535	535	535
DEPTH, FEET	12307	10246	13276
WELLHEAD PRESSURE,PSIG	5817	3600	6700
OPEN FLOW, MCFD	643	699	620
COMPONENT, MOLE PCT			
METHANE	93.7	73.9	96.8
ETHANE	0.4	11.6	0.8
PROPANE	TRACE	5.5	0.1
N-BUTANE	0.0	1.9	0.0
ISOBUTANE	0.0	1.3	0.0
N-PENTANE	0.0	0.5	0.0
ISOPENTANE	0.0	0.5	0.0
CYCLOPENTANE	0.0	0.2	0.0
HEXANES PLUS	0.0	0.5	0.0
NITROGEN	0.2	0.6	0.1
OXYGEN	TRACE	TRACE	TRACE
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.1	TRACE	0.1
HYDROGEN SULFIDE**	0.0	0.0	0.0
CARBON DIOXIDE	5.6	3.4	2.0
HELIUM	TRACE	TRACE	TRACE
HEATING VALUE*	957	1283	998
SPECIFIC GRAVITY	0.611	0.786	0.578

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 1. - SAMPLES FROM GAS AND OIL WELLS IN THE UNITED STATES

	INDEX 265 SAMPLE 16504
STATE.....	WYOMING
COUNTY.....	UINTA
FIELD.....	GLASSCOCK HOLLOW
WELL NAME.....	MILLIS WI UNIT NO. 1
LOCATION.....	SEC. 10, T15N,R120W
OWNER.....	AMOCO PRODUCTION CO.
COMPLETED.....	12/13/80
SAMPLED.....	04/14/82
FORMATION.....	JURA-NUGGET
GEOLOGIC PROVINCE CODE...	535
DEPTH, FEET.....	13744
WELLHEAD PRESSURE,PSIG...	1900
OPEN FLOW, MCFD.....	NOT GIVEN
COMPONENT, MOLE PCT	
METHANE.....	75.7
ETHANE.....	13.4
PROPANE.....	5.5
N-BUTANE.....	1.0
ISOBUTANE.....	0.9
N-PENTANE.....	0.2
ISOPENTANE.....	0.2
CYCLOPENTANE.....	TRACE
HEXANES PLUS.....	0.1
NITROGEN.....	2.9
OXYGEN.....	0.0
ARGON.....	TRACE
HYDROGEN.....	0.0
HYDROGEN SULFIDE**.....	0.0
CARBON DIOXIDE.....	0.0
HELIUM.....	0.02
HEATING VALUE*.....	1236
SPECIFIC GRAVITY.....	0.726

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY
** DUE TO THE ABSORPTION OF H2S DURING SAMPLING, THE REPORTED RESULTS MAY NOT BE RELIABLE

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX 1 SAMPLE 16592	INDEX 2 SAMPLE 16588	INDEX 3 SAMPLE 16590
STATE	PENNSYLVANIA	WEST VIRGINIA	WEST VIRGINIA
COUNTY	INDIANA	BRAXTON	DODDRIDGE
FIELD	ROCHESTER MILLS	CENTRAL W. VIRGINIA	PENNSBORO & LEESON
PLANT NAME	ROCHESTER MILLS COMP. STA.	BURNSVILLE COMPRESSOR STA.	WEST UNION COMPRESSOR STA.
LOCATION	8 IN. DISCH.	12 IN. INLET	12 IN. DISCH.
OWNER	CONSOLIDATED GAS SUPPLY CORP	EQUITABLE GAS CO.	EQUITABLE GAS CO.
SAMPLED	07/22/82	07/21/82	07/21/82
FORMATION	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE	160	160	160
PRESSURE,PSIG	840	45	232
FLOW,MCFD	12000	6000	13440
COMPONENT, MOLE PCT			
METHANE	95.1	86.5	86.6
ETHANE	3.1	8.2	8.1
PROPANE	0.5	2.7	2.6
N-BUTANE	0.2	0.6	0.6
ISOBUTANE	TRACE	0.4	0.4
N-PENTANE	0.1	0.2	0.2
ISOPENTANE	0.0	0.1	0.2
CYCLOPENTANE	TRACE	TRACE	0.1
HEXANES PLUS	0.1	0.2	0.2
NITROGEN	0.5	0.6	0.7
OXYGEN	0.0	0.0	0.0
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.3	0.2	0.1
HYDROGEN SULFIDE	0.0	0.0	0.0
CARBON DIOXIDE	TRACE	0.1	0.2
HELIUM	0.07	0.06	0.06
HEATING VALUE*	1049	1151	1155
SPECIFIC GRAVITY	0.582	0.649	0.655

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

TABLE 2. - SAMPLES FROM PIPELINES IN THE UNITED STATES

	INDEX 4 SAMPLE 16690	INDEX 5 SAMPLE 16589	INDEX 6 SAMPLE 16644
STATE	WEST VIRGINIA	WEST VIRGINIA	WEST VIRGINIA
COUNTY	KANAWHA	LEWIS	WAYNE
FIELD	WEST VIRGINIA	UPSHUR & VANDALIA CO.	KENTUCKY & W. VIR. FIELDS
PLANT NAME	COBB COMPRESSOR STA.	COPLEY RUN COMPRESSOR STA.	KENOVA COMPRESSOR STA.
LOCATION	WB-26 IN. OUTLET	12 IN. DISCH.	LINE P & BM-74, 20 IN.
OWNER	COLUMBIA GAS TRANS. CORP.	EQUITABLE GAS CO.	COLUMBIA GAS TRANS. CORP.
SAMPLED	10/12/82	07/19/82	09/08/82
FORMATION	NOT GIVEN	NOT GIVEN	NOT GIVEN
GEOLOGIC PROVINCE CODE	160	160	160
PRESSURE,PSIG	50	269	120
FLOW,MCFD	NOT GIVEN	10800	63
COMPONENT, MOLE PCT			
METHANE	81.8	89.6	93.6
ETHANE	10.0	6.5	3.7
PROPANE	4.1	1.8	0.6
N-BUTANE	1.2	0.4	0.3
ISOBUTANE	0.6	0.3	0.0
N-PENTANE	0.3	0.2	0.1
ISOPENTANE	0.4	TRACE	0.0
CYCLOPENTANE	0.1	0.1	TRACE
HEXANES PLUS	0.3	0.2	TRACE
NITROGEN	0.9	0.6	1.1
OXYGEN	0.0	0.0	TRACE
ARGON	TRACE	0.0	TRACE
HYDROGEN	0.2	0.2	0.4
HYDROGEN SULFIDE	0.0	0.0	0.0
CARBON DIOXIDE	0.1	TRACE	0.1
HELIUM	0.05	0.07	0.05
HEATING VALUE*	1225	1118	1046
SPECIFIC GRAVITY	0.699	0.627	0.588

* CALCULATED GROSS BTU PER CU FT, DRY, AT 60 DEGREES FAHRENHEIT AND 30 INCHES OF MERCURY

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